the American Perfumer
and ESSENTIAL OIL REVIEW
COSMETICS · SOAPS · FLAVORS
EST. 1906
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CONTENTS · MARCH 1945

REGULAR FEATURES

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Editorial Comment

Thank You Subscribers

War's impact hit THE AMERICAN PERFUMER a rather solid blow when country after country, through one cause or another, shut off subscribers from our lists. It was gratifying to know that we were read so generally throughout the world, but this also meant that we lost literally hundreds of subscribers.

As disappointing as it was to lose these subscribers through no fault of our own, we have concentrated in a united effort to bring to you remaining readers the very best AMERICAN PERFUMER, in appearance and in content, that was possible.

You have endorsed our efforts to a most gratifying degree. In June of last year, with many countries still closed to our magazine, we hit a new all-time high in circulation—and this figure was topped again in December. Currently, we are still gaining, and show an increase of 25 per cent over one year ago. As an indication that this is no unstable growth we have a renewal rate of over 84 per cent, a figure that is phenomenally high.

This is written not in a spirit of boastfulness on our part, but rather in one of appreciation to you readers who have shown such splendid recognition of our efforts.

Color as a Morale Builder

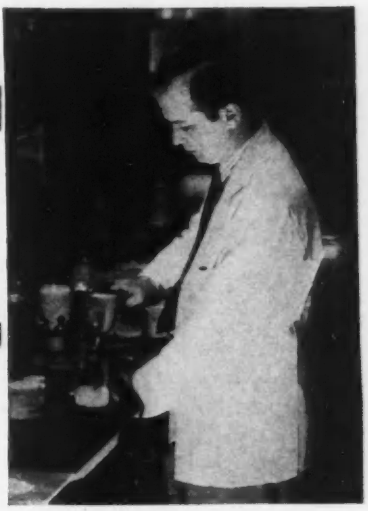
Hospitals discovered long ago that cheerful colors made for speedier recoveries on the part of patients.

Some smart manufacturers are applying this important morale builder to their plants. They are painting machines in cheerful colors; if a room is large, walls are done in different but harmonizing colors; different rooms are given individual color treatments instead of permitting one overall drabness to prevail; walls dominated by large windows are given special consideration as nothing can be more tiring than space.

The net result is a speed up of production, a reduction of absenteeism, and more contented personnel.

Desiderata

by MAISON G. DeNAVARRE



M. G. DeNavarre at work in his laboratory

CHECKING about a half dozen cream shampoos, liquid and solid, it has been found that only one did not turn translucent or clear when warmed to 85-90 deg. F. They all look swell at around 70 deg. F. during the winter months. But what happens this summer?

Most ingredients used to prevent this translucence reduce the foaming properties considerably. Some things like glyceryl monostearate practically kill foaming entirely. So, be careful what you use, but you had better use something.

GIVE AID TO YOUR INDUSTRY

Did it ever occur to you, that you know what you know, because there were ahead of you, individuals who were willing to share their knowledge? They either wrote articles, books, or taught students. No matter what the method, *they gave* some or all of their knowledge.

People are anxious to read about subjects pertinent to their industry, but exceedingly few are willing to share some of their knowledge with other industry members. No one asks you to tell all you know, but there is something you know that you can share *in part* with others. No matter how little that may be, it is a contribution to the general knowledge and growth of the industry. A lot of you readers have been absorbing knowledge for a long time. How about a bit of giving? Write it up as you want to. Send it to the editor. If it needs polishing up a bit, he will do it. But GIVE! Today. Stop taking only. *Give* when you take.

USE OF HONEY IN COSMETICS

The use of honey in treating chilblains, frostbite, wounds and sores is well known particularly to many Europeans. Whatever the mechanism of the results, the substance seems to have certain remarkable properties. Another article on the subject has been written by Chinese technicians who at first thought it may be the vitamin A content of honey that makes it so good, but this is discarded.

Just the same, honey seems to possess an old reputation for making the skin look and feel better. Read any of the early literature and formulations. Honey was discarded by most people a long time ago, yet it apparently has a good place in modern emollient creams and lotions. There is no question but that it must be used carefully and in minor amounts, because of its stickiness. It must also be preserved. No, *not all* of the old formulas were crazy. In our quest for the better things, we tend to look askance at the older findings. Some of them merit study.

ANTIOXIDANT NEEDED

If the war will make up its mind, maybe we can count on getting a small amount of animal or vegetable fats for use in cosmetics. If we get them, we also acquire a difficult problem, namely, the job of preventing rancidity. It is an industrial problem of major proportions, for most animal and vegetable fats just don't last long. After they are rancid, they cannot be used on the skin nor can they be taken internally.

In cosmetics, rancidity means discoloration and obnoxious smell. It is hastened by things like iron, copper, bacteria, molds, sunshine, heat and air. All sorts of things are being tried and used. The writer has had considerable correspondence with readers, establishing the need for a good antioxidant. Among the most talked-of, or written-about products today are NDGA and propyl gallate. In some cases as little as 0.005 per cent have been found sufficient to protect a substance. The exact amount can be determined only by testing. Experts on the subject say that traces of citric acid used along with the antioxidant increase the protection.

Any time you have an oleate like sorbitol or mannitol oleate, a ricinoleate as in castor oil or other unsaturates as in lanolin, mineral oil . . . yes, even mineral oil, spermaceti, hydrogenated lard, vegetable fats, cacao butter or double pressed stearic acid, you had better protect yourself with an antioxidant.

Some people are using esters of parahydroxy benzoic acid as antioxidants. For the most part, these esters are worthless as antioxidants. They are preservatives and can retard rancidity due to molds or bacteria, but if rancidity is due to oxidation by air, they are practically worthless. The polyalcohols possess some antioxidant effect, especially in emulsions, but this effect is different with each material, in some cases being absent entirely.

SUFFICIENT SUNSCREEN NECESSARY

This month two manufacturers' formulas were checked for presence of sufficient sunscreen to enable the product to perform satisfactorily. In each case, there was much too little

sunscreen. In one item, there was about one-third as much as necessary, and in the other, slightly less than half as much as necessary was being used.

There is no reason for this error. Plenty of publications from pure scientific journals to manufacturers' house organs have stressed the amounts of the different sunscreens necessary to give sufficient protection from the sun. How much is enough? That depends on how much protection you intend to give. A minimum should be two hours' protection from burn. Oils work better than creams or lotions. Alcoholic solutions of oils work very well without giving the skin a sticky-oily feel.

NEW SUPPLIER OF TRIETHANOLAMINE

There are both advantages and disadvantages in monopolies. One of the disadvantages is, that during times of stress, the sole producer of a product may be unable to take care of unprecedented demand or his own manufacturing facilities may either be allocated to making something else or the equipment can break down. Regardless of what happens, those depending on that supplier for the material in question. are left holding the proverbial *bag*.

That the sole supplier of triethanolamine has left his many users holding the bag, is not new. They have been holding the bag for about three years. But there is good news ahead.

A new supplier has started making triethanolamine. The small production has been gobbled up so fast you'd think it wasn't there to begin with. But it is the portend of better days. For now two companies will supply triethanolamine and other ethanolamines, we know so well in this country, competition is the spice and life of business. It will bring better material, cheaper, faster.

If you are a user of triethanolamine and can't get any more, have you tried ammonium hydroxide, potassium hydroxide, amino glycols or even non-soapy emulsifiers such as polyhydroxy stearates, non - ionic soaps, solubilizers, and the host of specialties still available? Look under "TRIETHANOLAMINE" in the replacements bulletin issued last year. Quite a number are listed therein. Maybe your particular formula will be difficult to adjust. Write THE AMERICAN PERFUMER if in question. We may be able to help you.

DO NOT WASTE STEARIC ACID

Another scarce item is stearic acid. If the different means of stretching supplies were mentioned, many of them would seem foolish at first glance. However, the fact remains, that some of the most foolish things can conserve supplies. Colloidal clays, magnesium aluminum silicate gel, polyalcohol stearates, absorption bases, petrolatum, higher alcohols, gums and waxes have all been tried or are being used with success. The scarcity is temporary. Nevertheless, you may be using more stearic acid in your formula than you require. Check it over; correct the waste. Many shaving, or hand preparations can benefit by adding a gum or colloidal silicate while reducing the stearic acid. Brushless shave creams wash out easier and stay wet longer using gums. Lotions or creams for hands can dry faster, leaving a nicer feel using colloidal silicates, for example. There is plenty of glycerine, propylene glycol and sorbitol syrup to give emollient effects.

QUESTIONS AND ANSWERS

538. INSECT REPELLENTS

Q: *We notice reference to the intended publication of an article on insect repellents. Has this article been published yet? We are vitally interested in such products and would appreciate your early reply.*

W. W. R.—WISCONSIN.

A: The article has not yet appeared, but it will appear sometime during 1945, probably the latter part of the year. Because of the scarcity of the materials for use in such preparations, few of the effective chemicals will be available to civilians. The military are taking almost the entire production.

539. ESSENTIALS IN DRY SHAMPOO

Q: *We would like to know how to make a dry shampoo, the kind that is dusted into the hair and brushed out. We have heard of mixtures of starch and bicarbonate of soda, but this we find was too hard to get out of the hair. We found kaolin better but it too is difficult to get out of the hair.*

H. A. E.—ILLINOIS.

A: Some of the essentials of dry shampoo are that the material have the proper degree of fineness, high dirt or absorbing properties and possess no harsh abrasive action. The degree of fineness is an important thought because materials that are too coarse fall right out of the hair while others that are too fine are difficult to brush out. You are using materials that are generally recognized as being satisfactory, but we would suggest that you get various degrees of fineness and experiment with them.

540. BUBBLE BATH POWDER

Q: *I shall be obliged to you for your generosity in recommending a formula for bubble bath powder and for a hand soap powder, using an organic scrubber.*W. S.—WISCONSIN

A: Under separate cover we are sending you the names of a few wetting agents which may be used in making a bubble bath powder. We do not know if these materials are available at the moment. Regarding your hand soap, containing an organic scrubber, we are completely at a loss as to what you have in mind. If you mean some organic material to replace pumice, we suggest that you try soap powder 50 per cent, dry, granulated powdered sugar beet waste and borax of equal parts, suitably colored and perfumed. If you care to elaborate further on what you mean by organic scrubber, we will try to help you.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How Odorous Particles Produce the Sense of Smell

In order to experience the sensation of smell, odorous particles must find their way into the refractory cleft, where they have an effect on the olfactory cells

by R. W. MONCRIEFF

IT may not have occurred to the reader that he or she possesses a most powerful and delicate instrument for the detection of chemicals. This instrument is the nose, or more properly, its olfactory region and the connections to it. High up and far back in the nose, almost behind the eyes is the olfactory cleft, some two or three square centimetres in area. We know that in order for the sensation of smell to be experienced, some odorous material, such as a rose, jasmine, an orange, an onion or cooking cabbage, must be near. Such an odorous material is continually throwing off very small particles of its odorous constituent. Flowers, for example, contain small quantities of oils which are themselves very strongly odorous. The oil in roses can be distilled out and is known as Otto (or Attar) of Roses, and its main constituent is citronella. Such oils are volatile and are continually giving off vapors.

OLFACTION THEORY EXPLAINED

In order for us to experience the sensation of smell, some of these particles must find their way into the olfactory cleft, where they have an effect on the olfactory cells. There are two kinds of cells in the delicate epithelium of this region, the supporting or sustentacular cells and the long, narrow olfactory cells which are colored yellow. Attached to these olfactory cells are delicate protoplasmic hairs. There is no universal agreement as to precisely what action the particles of odorous material have on the olfactory cells. Some believe that the action is chemical and is what is known as an addition reaction and in support of this it has to be conceded that the great majority of powerful odorous materials are chemically unsaturated and readily take part in addition reactions. It is supposed that there is some chemical in the olfactory cells which similarly is ready to take part in such a reaction.

This theory is known as that of the *osmophore* and *osmoceptor*, meaning respectively the odorous material and the receptive material which forms part of the olfactory epithelium. This theory held pride of place for many years, but there was always an outstanding objection to it, in that some substances, which were not unsaturated and which could not take part in addition reactions, were odorous. More recently the view that the effect of the odorous particles on the olfactory region is vibratory has gained ground. It is known that all molecules, and matter is composed of these, are in a state of vibration and it is believed that if these vibrations be within a certain range of frequencies, then odor is experienced. In this connection, the fragile protoplasmic hairs may be the receptors.

There are, therefore, two theories as to the action of the particles of odorant on the nasal receptors, chemical and vibrational. It is quite within the bounds of possibility that both effects obtain.

STIMULATION OF OLFACTORY CELLS

When the olfactory cells are stimulated, whether the means is chemical or vibrational, an electric current passes up the nerve which joins the olfactory region to the brain. This nerve consists of some 20 separate fibres. Unlike most of the sensory nerves in our body, the fibres of the olfactory nerve are non-medullated, that is they have no protective insulating sheath. This fact probably facilitates induction between the fibres and prevents us from experiencing a "pure" odor. The nerve passes the electric current, which consists of a series of discrete electrical impulses, to the brain. These electrical impulses are always of the same amplitude whether the stimulus is strong or weak, but they may vary in frequency. If the stimulus is strong, as when a powerfully odorous substance is near the nose, then the frequency at which the impulses are despatched to the brain will be high, but if the stimulus is weak, they will be relatively low. How the brain converts these electrical impulses into the sensation of smell we do not know. It is maintained by some that the sensation, and the electrical phenomena that bring it about, are identical, but this idea runs counter

to ordinary experience anticipated.

During normal breathing the air takes a fairly low path through the nose to the throat, and the problem has arisen as to how the odoriferous particles which may be present in air reach the olfactory cleft, high up and to the back of the nose. Experiments have been made in which a sleeping person was made to breathe air containing fine particles of magnesia, and the areas on which the magnesia was deposited were determined by inspection with a rhinoscope. Such experiments showed clearly that even during light breathing, eddy currents of the air carried some of it, and with it some of the particles of magnesia, high up into the olfactory cleft. This accounts for our sensing odor when we are breathing normally and are not on the lookout for it. We experience the sense of smell in this way but usually faintly, and our immediate reaction is to sniff. The mechanism of the sniff was worked out by Dr. Ogle in 1870. He showed that the action is to bring together by lateral compression the outer wall and the median septum (the middle partition) of the nose, opposite to the respiratory channel, so that the usual respiratory tract is closed and the air is forced into a channel carrying it higher to the olfactory cleft. So that once a faint odor is noticed, a sniff is taken and by this means a large number of the odoriferous particles are swept into contact with the olfactory cells, and then a strong sensation of odor is experienced.

HUMAN ACUMEN REMARKABLE

It is remarkable how delicate is our sense of smell. The subject has long proved fascinating. The great chemist, Robert Boyle, was intrigued by it and in 1673 he wrote an essay on "The Great Efficacy of Effluviums" and a few years later another on "The Strange Subtilty of Effluviums." He instanced the case of a pair of gloves which had retained a perfume for 30 years. The writer uses an old powder-box to keep studs and other oddments, and although this box has had no powder in it for about forty years, it still smells quite strongly of it. Many measurements have been made to find the minimum stimulus, that is the lowest concentration of an odorous material, of which we can just detect the odor.

Naturally this varies from one substance to another. To take as an example, alcohol, we can just smell this substance when it is present in air to the extent of 4.4 parts per thousand by weight. There is a group of chemicals known as the mercaptans which are closely related to hydrogen sulfide, the gas with the rotten eggs smell that most of us come across at school. The commonest of these mercaptans can be detected by smell when present in air to the extent of three parts by weight in one hundred thousand million parts of air. Our sense of smell for mercaptan is one hundred million times more delicate than it is for alcohol. A few substances can be detected in even greater dilution than this. One of these is skatol, the odorous principle of faeces; another is synthetic musk. In the case of skatol, it has been observed that one part by weight of skatol in three million million parts of air can just be detected by smell. The incredibly small weight of skatol that the nose can detect may easily be estimated. Suppose that we require three cubic inches of air for a good sniff, this is approximately fifty cubic centimetres and this volume of air weighs about 0.065 gram. The weight of skatol at the threshold concentration for smell in this weight of air will be only 2×10^{-14} grams. One ounce would be more than a thousand million million times as heavy. We get some indication of how extremely small this is by considering the chemical balance. A good analytical balance will weigh down to 10^{-4} grams and a micro-analytical balance will weigh to 10^{-6} grams. This represents about the limit so that the nose is about one hundred million times more sensitive than our finest balance. Yet the balance is considered to be one of the most accurate of the chemist's tools. The sensitivity of the nose is more comparable with that of the spectroscope.

Plants effuse small particles

The sensitiveness of olfaction varies from one race to another. The Arab is credited with the ability to smell a fire in the Great Desert thirty miles away, and some native bushmen are supposed to rely largely on smell for tracking, although in this case woodcraft is probably an important factor.

It is a commonplace that some animals, such as the dog, have a more acute sense of smell than we have. It is believed that the pigmentation of the olfactory region runs parallel with such sensitiveness. In man it is yellow, but in the cat yellow-brown, in the dog brown, in the fox reddish-brown, and in the sheep it is almost black. Those animals with intense pigmentation of the olfactory region have a very acute sense of smell and are termed macrosmatic (Greek—osme = smell). Other animals that lack pigment have a weak sense of smell and are termed nucrosmatic. The Himalayan rabbit is pure white when born and only develops pigment at weaning time when it becomes necessary to discriminate by smell amongst foodstuffs. The Spitzbergen whales are said to be anosmio, i.e., without ability to smell. In this connection, albinism in humans is usually accompanied by loss of the sense of smell. Dr. Ogle instanced the case of a boy, son of two black Kentucky slaves, who at the age of twelve gradually lost all pigment so that he eventually looked like a very fair European, and simultaneously this boy became anosmic.

DOGS FOUND TO BE SENSITIVE

The extraordinary sensitiveness of smell in dogs is illustrated by Fabre's record of the *rabassier's* (truffle-hunter's) dog. The truffle-hunter knows where the truffles are likely to be and leads his dog to such spots. The dog "goes forward, scents the wind, stops, questions the soil and scratches the earth a few times." If left to itself the dog unearths large and small, fresh and putrid, odorous and (to us) inodorous, fragrant and

offensive hypogenous fungi. It is clear that although the dog's sense is extraordinarily sensitive, it yet lacks our discrimination.

MARKED SENSITIVITY IN INSECTS

In the case of insects, this hypersensitiveness is even more marked. Fabre records the case of the *Bolboceras gallicus*, a little black beetle about the size of a cherry stone. This little fellow lives exclusively on truffles, and on one particular kind of truffle, *Hydnocystis arenaria*, at that. In the evening it goes abroad, explores the soil, and the sense of smell warns it when the desired object is underneath. It then sinks a well vertically downwards and infallibly reaches the truffle and then feasts happily at the bottom. Fabre buried some truffles under earth in his laboratory and found that the beetle made no mistakes, no exploratory excavations.

In the case of moths and butterflies their sense of smell is so acute that it has sometimes been suggested that the operative sense is not smell similar to our own sense, but a different sense which we are denied. For example Mell marked some male Chinese moths and released them from a railway train to seek out the female in a gauze cage on the veranda of his house. From a distance of two and a half miles 40 per cent of the marked males succeeded in their quest, and from seven miles, 26 per cent were successful. Standfuss exposed a newly hatched female Emperor moth at his window in the heart of a town and within six and a half hours caught 127 males attracted to her.

There are two sides to the question about the bees and the flowers. There is plenty of evidence that bees are often attracted to flowers by odor and indeed bees can be trained to react to a certain smell, but there is also a good deal of evidence that they discriminate largely by color and sight. There is no reason to doubt that they employ both senses, according to the conditions.

Ants recognize the inhabitants of their own formicary by smell and fall on and put to death an intruder. If, however, the ants are deprived of their antennae, the seat of their smell receptors (i.e., their nose) they fail to recognize their own fellows and will kill them as if they were strangers.

Philippine Fats Export Situation

THE lag incident to reorganizing a widespread and lengthy system of harvesting, assembling, processing and shipping copra and its by-products is expected to keep coconut oil from United States industries for many more months.

Coconut palms grow wild throughout the islands, and sharecroppers on farms of less than 25 acres gather approximately eighty per cent of the nuts which are eventually exported in the form of copra (dried coconut meat), oil, desiccated coconut and copra cake and meal. In 1940 these shipments totaled a billion and a half pounds. The remaining twenty per cent of the production—including in the foregoing total of shipments—comes from farms of up to one thousand acres. Production per tree averages 30 nuts annually, although figures of as high as 200 nuts have been reported on the more scientifically planted and managed plantations.

NEED TIME

Coconuts ripen the year around, and harvest is carried on as the nuts mature. Palms begin bearing at four years of age, but yield is insignificant until the seventh year, and ordinarily ten to twelve years elapse before a "normal" yield is obtained. Assuming a good share of the coconut groves are bombed or scorched, some years may lapse before oil exports are back to normal.

After picking up the ripe and fallen nuts, the sharecropper husks, splits and heats them sufficiently to separate the meat from the shell. Then this meat—the copra—is dried by natural or artificial methods. When enough copra has been accumulated to justify the trip, it is packed in bags and hauled to the trading post. There it lies until the trader has gathered sufficient stock for transportation to Cebu or Manila, for pressing or export "as is."

POSSIBLE DESTRUCTION

Months will have lapsed before all these sharecroppers will have returned to their peacetime occupations and before the normal flow of copra will resume. It is reasonable to assume that crushing facilities will be damaged or destroyed by the Japanese before they are driven out. This will make it necessary, for some time, to export the more bulky copra to the United States for pressing here. More ships will be required and additional time consumed in handling.

Census reports in 1939 indicated that more than half of all Philippine farmers produce coconuts, either as their principal harvest or as a side crop. More than a fourth of the total land under cultivation in 1939 was devoted to coconut palms.

SHIPMENTS GREAT

In 1941, copra and coconut oil imports from the Philippines by the United States accounted for more than one-third of all foreign fats and oil shipments received in that year.

When the Philippines fell to Jap treachery, the United States lost one of its more important sources of fats and oils and with the coming of war, these products became of prime importance.

American housewives have done much to meet this situation, through salvaging used fats. However, as meats become more scarce in the retail markets and on domestic tables, it becomes more essential that this campaign by intensified.

The liberation of the Philippines must not be considered as a sign for a let down. *(From an article by Charles E. Lund, in "Foreign Commerce Weekly.")*

Honduras Coconut Export

Exports of coconuts from Honduras increased during the third quarter of 1944 by 56 per cent as compared with the preceding quarter. The increase was to 3,866,801 nuts.

French Morocco Olive Oil

Oil works established within the past few years will permit the postwar export of olive oil of fine quality from French Morocco. Olives are an important crop.

Cuban Cosmetic Imports

Imports of cosmetics and toilet preparations into Cuba in June, 1944, amounted to 11 metric tons, valued at $74,000.

Short Adages

by R. O'MATTICK

THE latest news from that cosmic and cosmetic World Center, Hollywood, is that the great Greta Garbo and Dr. Gayelord Hauser have entered the cosmetic business. Gee-Gee's name has not been put on the products, and the company is called simply "Beauty Makers of Beverly Hills." No doubt, her name is not used because Greta wants to be "left alone."

* * *

The large number of Waves, Wacs, Spars, Army Nurses, etc., has not hurt the beauty or perfume business at all. Military regulations dictate what kind of hose or gloves or pocketbooks these military gals can or cannot wear, but there are no rules about what perfumes and such matters in the handbooks and manuals. The ladies make up for the feminine frills of which they are deprived by using a little extra splash or two of Surrender, Intoxication, Tabu, or whatever happens to be their favorite odeur.

* * *

In spite of everything, it is still rather difficult to put out perfumes without alcohol, so that everything concerning this much-desired solvent, including the internal consumption thereof, keenly interests our good friend, guide, philosopher and master-perfumer, the great Dr. Rowmateral. He was following closely the testimony of Mr. Berkshire, head of the Alcohol Tax Unit, recently given before the Appropriations Committee of Congress. Some of the Honorable Members were most anxious to know whether in the opinion of Mr. Berkshire blended whiskey is better than straight whiskey, but Mr. Berkshire, who is a diplomat and non-partisan, stated that the question is one of taste. It is possible, as the French say, *d'être mariné dans l'alcohol*, blended or straight. Mr. Berkshire did point out that warehouses in these United States contained enough liquor to last for two years at the present rate of consumption, if all of it is sold as "straight" whiskey. The storage is 317,000,000 gallons (this could make, in terms of alcohol, about 40,576,000,000 ounces of perfume—editor's note), but allowances "must be made for losses of 22 or 23 per cent, largely from leakage and evaporation."

* * *

Now, what worries poor Dr. Rowmateral mostly is this 22 or 23 per cent business of loss from leakage and evaporation. "They should put the lids on tightly and plug up the openings," he said, while mentally engaged in some rapid calculations. "Naturally, we must expect some loss but 2 or 3 per cent is enough, even allowing for leakage involved in handing out a few unrecorded gallons here and there to nightwatchmen, gentlemen of the press, friends and relatives!"

Certainly, saving the 22 per cent would rescue about 8,115,000,000 ounces of alcohol which could be used to provide over 56,000,000 gross of one ounce bottles of perfume. Yes sir, this is food for thought, or shall we say drink for thought, in keeping with the situation.

* * *

Dr. Rowmateral hopes he will have an opportunity to testify before the Honorable Members. He plans to tell them a few things—straight and unblended. And straight whiskey is far better—he insists. Meanwhile, he has decided to work on an utterly new invention—the patent rights to which he plans to donate to the Perfume and Cosmetic Industry—a recovery sponge, which will absorb alcohol vapors and return them to the tanks in which perfumes are stored.

We recall that not so long ago there was little concern when a carboy of phenyl ethyl alcohol broke in the compounding rooms. Everyone was grateful that the loss was not a kilo of jasmine absolute. But today, let some clumsy apprentice tip over a four ounce bottle of diethyl phthalate and the whole place will be in a whirl for days on end. One perfume laboratory has a neat but significant sign, appropriately decorated with skull and crossbones, and containing this rhymed couplet:

Leakage and loss, leakage and loss
Always arouse the ire of the Boss.

* * *

Speaking of leakage and loss, we are at a loss to know why there is no leakage of news about the flower oils in and around Grasse. Are there any or not—and how much, and when?

"If you use our 'Come Hither' perfume, madam, you'll need our kiss-proof lipstick!"

Lotion Tipplers

Crown Officials in Toronto have called a conference to consider means of stopping the sale of bay rum and face lotion for "beverage purposes," which officials say has reached "alarming proportions," it has been announced.

The matter will be discussed with police officers and Dr. Smirle Lawson, chief coroner.

The conference, it is expected, will recommend to the provincial government special legislation that would block the sale of alcohol-containing lotions for beverage purposes.

Prospects for Essential Oils in 1945

During most if not all of 1945 shipping shortage is expected to be acute . . . Efforts to grow various essential oil-bearing plants in this country and South America not very encouraging

by C. A. MYERS

Vice-President, Dodge and Olcott Company, Bayonne, New Jersey

WHEN we became one of the belligerents in 1941 and Japan began progressively to gobble up the spice islands and succeeded in getting under her control most of the China coastal ports as well, it certainly looked as though the essential oil business, dependent upon that part of the world, was in for hard sledding. This seemed particularly likely when one considered what happened in the previous war with special regard to the effect upon trade caused by the shortage of ships.

As the magnitude of the present war gradually sank into our consciousness, it seemed inevitable that the essential oil business generally would be hard hit, and the extraordinary thing is that it has not suffered worse. Such Far Eastern products as Java citronella oil for example, have been completely cut off by the Japanese, while the Germans stopped the French flower oils and the citrus oils from Sicily.

JAPAN CONTROLS CHINA OILS

The Japanese have pretty effectively stopped oils anise and cassia from moving out of China, but domestically manufactured anethol as well as cinnamic aldehyde have at least temporarily filled the bill. This is not to say that anethol can be considered a perfect substitute for anise oil, nor cinnamic aldehyde for oil cassia; nor would anyone suppose that once the natural flavoring oils are available again in volume, and at reasonable prices, will the substitutes continue to have the easy sailing that they have recently enjoyed.

The "bouquet" which these natural essential oils impart, and which is lacking in the synthetics, will insure them their place once again when the natural flow of materials takes place as it is bound to do after the war, and the same thing is true of most of the other substitutes, imitations, or what have you, that have sprung up as war stopgaps in the essential oil trade. Of course, the availability of these oils is predicated upon their being offered at a reasonable figure and not at the highly inflated prices which such lots bring, under present conditions, that may be flown out by plane now and then from the place of production.

Even after the end of the German war, the wide disruption of trade and the complete upheaval of life generally in the occupied or recently occupied countries will mean a probable delay of many months before anything like normal traffic is once more resumed. Furthermore, the political situation and the domestic problems in those countries, such as the rehabilitation of their currencies on a sound or near-sound basis, will have to be straightened out. It would seem probable, moreover, that once the war in Europe is over, much of the shipping facilities will be transferred to the Eastern war theater, where the ever-lengthening lines of communication turn what would otherwise seem like a plethora of ships, into a shortage.

This will mean, of course, that even though the war in Europe may soon be over, nevertheless, during most, if not all of 1945, the shipping space shortage still will probably be acute; and if the prediction by some that the Japanese war will last into 1946 has any basis in fact, that means there will be but little practical relief from this condition during 1945.

As an illustration of how this situation acts, one might cite the position of cloves at this writing. The market on the spot is practically bare of supplies, both of the spice itself and of the essential oil as well. According to all information there must be plenty of spice in warehouses both in Zanzibar and in Madagascar; but there is no available shipping space, and no one can foretell when further supplies will come forward. This situation may be expected to repeat itself time after time in the future, not only on cloves, but on the whole gamut of essential oils that are either imported themselves, or for which the raw material comes from abroad.

There are no patchouli leaves in commercial quantities; the price for what driblets are available has hit the ceiling; and the future prospect for this material is much worse than that for cloves, since even if boats were available, no material could be shipped, because of the Eastern War condition.

So far as nutmegs are concerned, nothing can or will come out of Java, or Sumatra either, until the Japanese part of the war is over. However, limited quantities of the spice have been shipped here from the West Indies, and while the oil distilled from this particular raw material is lacking in the heavy gravity section that imparts to nutmeg oil from the East Indian type of fruit its characteristically fine full aroma and flavor, oil from the West Indian nutmegs has been found by some to be at least acceptable as a substitute for the old standard article. Put in another way, it might be said to be better nutmeg than no nutmeg at all.

INDIA HAS SANDALWOOD AVAILABLE

Vetivert, geranium, and ylang-ylang trickle out in small quantities from time to time, and sandalwood is available in India (if you can get ships to put it in) at prices that would make the American distillers'

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cost of the oil higher than the ceiling price at which he is permitted to sell. This anomalous situation can be changed by Washington granting higher ceiling prices, or India offering wood at lower figures; but then the shipping shortage must also be overcome, even though one or both the other factors be modified. This example will serve to illustrate the difficulties of doing business in such products under existing conditions and a somewhat similar situation, so far as abnormal shipping conditions are concerned, confronts the raw materials for amyris and guaiac oils.

LEMON OIL REMAINS TIGHT

Lemon oil will doubtless remain tight as long as the demand for lemons themselves continues high, and the government keeps on buying up most of the available supplies of oil.

Orange oil, however, will probably be freely available because of its enormous production, since it is today made in California, Guinea, Florida and Brazil; while quantities of bergamot will most likely continue to come in directly from Sicily.

RUSSIA SHIPS CORIANDER

Efforts to grow various essential oil-bearing plants in this country, and even in South America, are not very encouraging viewed as a future prospect. Even with the benefit of harvesting and cleaning machinery and other modern equipment, prices are away out of line with what were current before the war. What good will it do in the future for American farmers to grow coriander seed, let us say, at twelve cents per pound or more, if, after the war is over, the Russians once again deliver the seed laid down here in America for one quarter of that price, as they did years ago? Let us suppose that their costs are now even doubled, the American is still at a tremendous disadvantage. The Russians, however, are taking advantage of the situation as it stands at the moment and while they are not shipping any coriander seed partly because there is no shipping space available, and partly because it has not been their practice to ship the seed for some time past, they are shipping some of the distilled essential oil. Their price for the oil has more than quintupled since the war began and they are now asking from $28 to $30 per pound for it against a prewar of around $4 per pound.

ARVENSIS CAN BE CULTIVATED

Efforts to grow Jap oil peppermint (*Arvensis*) here and to make oil lemongrass and other oils from American grown plants would seem to be in much the same category. Of course, with menthol at $15 per pound, (more than five times its prewar price), Arvensis can be grown successfully, but unless some extraordinary protection is put in the way, Japan will knock this thing in the head when the war is over in the Far East, and they get on the job once again with near-slave labor.

With regular sources cut off by the war, many such efforts are successful; but once things begin to go back to a situation even remotely resembling normalcy, low cost labor will once again have its effect, and the rather difficult toe-hold recently gained by the American and other newcomers in the business will probably become a precarious one. The likelihood of high tariffs to prevent this is certainly problematical, because the trend seems very definitely away from this sort of thing.

Australia's Essential Oils

Australia has many shrubs and small trees popularly known as tea trees whose leaves and small end branches contain essential oils readily obtainable by steam distillation, reports the British press. From the tree *Melaleuca* linariifolia, which is subject to commercial exploitation in Queensland, a pale, lemon-colored essential oil with a nutmeg odor is derived by steam distillation. This is used for soaps and perfumery.

The tree *Melaleuca* alternifolia is common in the north coast district of New South Wales. The crude oil from this tree is used in medicine and therapeutics, and the standardized oil in surgical work, chiefly because of its reaction upon inflamed tissues.

The supply of raw materials for the production of these oils is almost inexhaustible, for the trees, after reduction to mere stumps, at once grow shoots, or suckers, which in a very short time form fine branches of healthy new foliage which are rich in oil. Cutting and gathering this new foliage is easier and more expeditious than the first collection.

Leptospermum citratum is a lemon-scented tree found growing sparsely on rocky ranges in certain sections of Queensland. A valuable essential oil with a strong lemon and citronellal odor is derived from the leaves and end branches. From 10 to 15 pounds of a pale lemon-colored oil containing citral and citronellal can be obtained from 1000 pounds of the raw material.

At the present time, there is insufficient raw material to meet commercial demands for the oil of *Leptospermum citratum*, since only 80 gallons per year are being produced in Australia. There are a few experimental plantations not yet in production.

A few years ago seed of *Leptospermum citratum* was sent from Australia to Kenya, where the first commercial plantations in the British Empire were established. Small shipments of oil from these plantations arrive every few months in Australia, for sale at a price considerably lower than that of the oil produced domestically.

Most of the oil from *Leptospermum citratum* is sent to Melbourne and Perth, where it is used for the manufacture of citral, citronellal, and citronellol. The citral produced is of exceptionally high quality.—*Foreign Commerce Weekly, Jan.* 27, 1945.

Good Packaging Pays

One reason Japanese soldiers do not get the medical care given American soldiers can be attributed to their faulty glass containers, in the opinion of Charles Picco, a U. S. Army Infantry Lieutenant on Saipan.

In a letter to his former associates in the Owens-Illinois Glass Company general sales office in San Francisco, Lt. Picco said "Japanese prescription ware upon examination is of poor quality and doesn't even compare with the poorest U. S. manufacture."

"Most are 'heelers' and examination of broken bottles showed a very poor distribution," Lt. Picco wrote. "They tend to be heavier in construction in comparison to our comparable containers. All of their (Jap) ware showed evidence of poor molds. The seams were uneven and the outer surface rough and pocked. Many bubbles prevailed in most of their ware. . . ."

Cosmetic Trends in the Middle West

Department store and specialty shops report that sales have been low . . . Preference for hand lotions over hand creams . . . Buyers want help in educating customers on usage of treatment creams

by JEAN MOWAT

HOW effective is national advertising? That is a question which many buyers in the middle west would like to ask the makers of nationally-advertised merchandise. One particular firm is mentioned by every buyer for they must accept mats which are prepared by this company. When this firm's merchandise came on the market several months ago, priced in the top brackets and beautifully packaged, it moved in what was considered fair volume for a new product that had not previously been heralded. Today, that maker's sales are static because his ads are static. They carry no flair for that elusive charm that every woman wants, except to say that the skin feels fresher, younger . . . an old story . . . that could be told in such an entrancing way that no store would be able to keep sufficient goods to keep up with orders. Buyers like the product, and feel that it has an important place in sales, but that place should be filled today while there is still plenty of folding money about. On the other hand, many nationally known and treatment lines permit stores to prepare their own brand of advertising for merchandise with excellent results. As an example of this, Wasson's of Indianapolis used more than a half page ad in Valentine red, with a perfume message in a white heart, and with smart containers and Cupid outlined. The ad was not only strikingly different, but probably not a man in the territory who saw the paper missed the point of sending a little sweetness to a sweetheart.

INDIVIDUAL SALES LOW

For many years a well known hand lotion has always been distributed through department and specialty shops. This year it has also been sold at drug and chain stores. No one reports a good sale as compared with other years. Duluth, Minneapolis, Omaha and Des Moines report sales down. Buyers claim that individual store sales have been low because the public could buy the lotion anywhere. No one knows whether the company's sales have advanced in the territory, but the department and specialty stores have suffered.

Hand creams and lotions which are sold through the regular department store channels have enjoyed one of the best years. Considering the extremely cold weather which has covered this section of the country since early December this should have been pay-off year for hand treatment creams. Many of them have had preferred acceptance to lotions, although some buyers would disagree with this. Sales in many instances depended upon stocks.

"Some day," predicted one of the younger buyers, "some firm is going to offer a hand cleanser to be used for the thorough removal of dead tissue before the cream is applied. Then women will really know what a fine, smooth skin a hand can have, even in zero weather." There may be an idea here for new profit.

NAME ASSURES SALEABILITY

Buyers throughout the middle west are sold on one idea for perfumes—they must have clever names to be sold. No longer does a woman buy lilac, violet, gardenia—she wants it with a fancy name, even if the floral odors have to be capped with Latin or botanical "handles." A store such as Marshall Field & Co. will find this to be as much of a factor in a successful perfume sale as the smallest shop out in Iowa. This is a trick which the mail order catalog houses have learned and used to good advantage. A fancy name, or something that is indicative of outstanding charm, means a great idea. If the manufacturer then puts his product in a fancy bottle, and a package that is de luxe, a sale can be made at any price which the OPA will permit. St. Louis and Kansas City buyers illustrate and show the package as well as the bottle.

A small shop on the North Shore, where money has been in the same families for generations, illustrates the importance of packaging. Here one plain bottle sells for $3.50, while a fancy bottle in a gay package (same perfume and amount) sells at $7.50 and outsells the former hands down. Selling beauty in a plain-jane carton versus selling beauty in a gorgeous box is a knock-out blow for the former, and the women are the umpires. Liquid colognes seem to have been plentiful lately, but creams are slower in sale although steady as repeat business.

If stores really want to move perfumes, and extensive Easter plans are now being made for their promotion, containers should receive equal treatment with bottles. Not only do men go for fancy bottles, but women will actually pass over an expensive and delightful scent in an ordinary bottle to a cheap perfume in a gorgeous bottle. Buyers say, "and why not, we like them."

Ward's spring and summer catalog features two pages of gaily illustrated packages and even treatment creams which are smartly boxed. It knows the public's tempo for a smart gift.

ARMY EMPHASIZES PACKAGING

When the Subsistence Research Laboratory of the Quartermaster Corps, Chicago Depot, directed by Col. Rohland H. Isker, began its in-

tensive research on foods for all fighting fronts the greatest problem confronting the work was packaging. Speaking to a group of engineers recently, Col. Isker made this suggestion: "In the days to come when you have materials at hand to work as and how you please, don't forget that eye-appeal is important, but instead of your advertising agency doing this according to their idea let it be the work of a packaging engineer."

If a package of perfume, treatment cream, even a deodorant, sells with a greater profit to maker and store than one merely boxed, the Colonel has more on the ball than one might suspect. If the package to the soldier is so important (excellent) and attractive containers are demanded in different tones for identification) consider what it must mean to his wife. So, ask your agency to give you more time on ads and get a packaging engineer to make a container that will make even your wife's eyes bulge! Buyers don't often gripe about such matters but when they are stuck with merely a bottle there is a demand for redressing the material.

LIPSTICK USED AS BARTER

If you are an executive who thinks that lipsticks are merely a youthful craze, you may be mistaken. Hear ye: E. P. Brooks, vice-president of Sears, Roebuck & Co., is now en route to China, and of all the items which were a must, lipsticks headed the list. Mrs. Brooks said that a friend in China had written explaining that lipsticks had more value for size and weight in the way of barter than any other commodity. (Lipsticks were used by the Chinese centuries ago. Ed.) In places where money has no value a lipstick will get you through. Women apparently are still highly important in Chinese affairs.

COMPLAINT DEPARTMENT

Buyers want more help in educating customers on the usage of treatment creams and their application, for those women who are a bit dumb (apologies, of course, we are quoting the buyer). More mascara is selling to the teen-ager, and instructions are needed for intelligent application.

Temperamental manufacturers are going on the black list because they, (1) either want to advertise in their own way all over the country, or (2) pull out a line just as the public is beginning to be aware of it.

"Please indicate types of perfumes for sports, career women and evening use," ask buyers, "for this will be an aid in planning ads and in giving women the right stear and making for repeat business." Wanted: more floral odors for Easter, and be sure the names are gay.

Service Women's Cosmetics

Packing of four cosmetic items, creams, compacts, lipsticks and face powder, for resale to WACs and Army nurses in overseas theaters has been changed to include a variety of brands and sizes of each item in every packing unit, according to Col. George F. Spann, QMC, Commanding Officer of the Jersey City Quartermaster Depot. An average of more than $50,000,000 is spent monthly at the depot for these and similar comfort items to be resold in post exchanges to service men and women overseas. From the inception of the overseas resale program at the depot early in July, 1942, until the present, cosmetic items have been packed by manufacturers with only one size of each item to the case.

The service woman's demands for more variety in brand and price range was expressed by post exchange officers from various theaters of operation at a meeting with Jersey City Quartermaster Depot buyers. These procurement specialists then devised the assorted pack which permits a range of both brands and sizes of a particular item. Assortments are packed on the basis of popularity shown by commercial sales in this country, and each package contains a selection similar to that of any drug or department store on Main Street.

In addition to providing more variety in cosmetics for service women, the new packaging system will avoid over-stocking of particular sizes or brands in overseas post exchanges. Furthermore, the growing demands for these products can be distributed more equitably among cosmetic houses now engaged in the program.

Recent orders handled at the depot included 500,000 jars of beauty creams, 100,000 compacts, 150,000 boxes of face powder and 200,000 lipsticks. In accordance with the Army's intent to make comfort articles available at the lowest possible cost to our service personnel, cosmetic items are sold in overseas post exchanges slightly above cost—far below retail prices in the U. S.

Ceylon Coconut-Oil

It is expected that the yield of coconuts in Ceylon will be less in 1944 than in the preceding year. This was caused by the failure to replant palm trees. The estimated yield for the past year has been revised down from 1,830,000 to 1,650,000 long tons.

It is estimated that the production from this area of coconuts is being reduced at a yearly rate of about 3 per cent, as a result of aging trees and insufficient use of fertilizers. Labor shortage also reduces the number of nuts available for copra and oil, as the nuts must be picked and cured. In addition, there is an upward swing in the use of coconuts for food. Rice, which was formerly the staple food, has been critically short, and there has been a sharp rise in all foods except coconuts. In 1938, 741,000,000 coconuts were consumed as food, whereas in 1944 this had risen to 935,000,000. During the first nine months of 1944 were 30 per cent higher than during the corresponding period in 1943. Almost all of this went to India.

There has been a reduction in the production of oil, which can be traced largely to the lack of replacement parts for expellers. The manager of the firm which produces more than half of the oil pressed in Ceylon has estimated that, due to the lack of spare parts, presses were working at 60 per cent efficiency.

During the third quarter of 1944, there was a gain in exports of oil, but the figures for the first nine months of the year were below the like period of 1943. India's share of the oil exported was one-seventh of the total, compared to one-fourth for the year 1943.

It was reported in November that pipes and plates for the construction of four 500-long-ton storage tanks had arrived in the Colombo area. The port engineer reported that he expected the tanks to be completed by February or March of this year, but that piping might not be ready until a later date.

Success Story: Seaforth Cosmetics for Men

Careful planning in packaging and scent to suit masculine taste, plus sales promotion, helped to create the demand for this men's toiletry

by WILLA FREDERIC
Alfred D. McKelvy Company, New York, N. Y.

TOILETRIES for men is not a modern invention—it stems from the ancient Pharaohs, when vegetable dyes colored the lips of the male of the species and rare perfumed oils were poured lavishly over the body. The excessive use of oils, powder and paint continued in high favor throughout the following centuries until the French Revolution, when it lost favor at the same time Louis 16th lost his head. The use of florid aromas became a symbol to the people of the tyranny and the decadence of the court and the swing away from the use of it in any form was sharp. It was a couple of decades thereafter before a gentleman dared wear even a dash of eau de cologne if he hoped to escape the hammer of the Tribunal. The British followed their lead, frowning upon fragrance more frivolous than lavender water. But it took the Americans to swing all the way to the other extreme and make it "sissy" to smell like anything other than a quarter-back or a six-day bicycle rider.

SCENTED TO SUIT MEN

Alfred McKelvy of Seaforth has done perhaps more than any other one person in convincing the American man that there is a happy medium—that he can remain as masculine as a warrior and yet be well-groomed. He has succeeded where others failed because he has differentiated between men and women's scent—he has filled a demand for toiletries *made for men, packaged and scented to suit the masculine taste.* As a matter of fact, he has helped to create that demand. Starting with a bankroll of $2,500, he has, within five years, become the leader in the field which in 1944 did a volume retail business of $40,000,000.

In 1939, Mr. McKelvy was an account executive for Batten, Barton, Durstine & Osborn, and was spending his spare time in the cellar of his Minneapolis home experimenting with formulas for a strictly male line of cosmetics. Up to that time, the word "cosmetics" connoted the feminine gender, though a few enterprising companies manufacturing toiletries for women had added an item or two for the masculine trade, marketing them ostensibly as "drug" products.

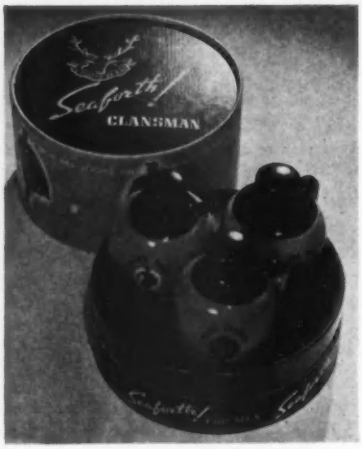
The inspiration for Seaforth came from McKelvy's native Scotland—its scent, its design for packaging—its name from the famed Seaforth Highlanders regiment whose ancient charter specifies that all members must be "over six feet and of handsome appearance," and whose courage in battle since its formation in 1717 up through the present world war precludes any association of the word "sissy."

McKelvy knew that in putting over a line of cosmetics for men, one of the first things to be considered was eye-appeal; it must be presented in a package as tailored to a man's liking as a well-proportioned pipe. He wanted a package men themselves would buy, not one just to be placed under the Christmas tree by their women folk and thrown out along with the too-flagrant tie as soon as it was feasible. And he knew that though it were a product of the finest quality obtainable, no man on earth would buy it unless it were strongly geared to his world—no man would be caught with frills and furbelows in his room—on his chest of drawers. So conforming to his Scotch theme, and with a bow to the masculine taste, he based his design on ancient Scotch whiskey jugs. The exact replica in miniature was used for all liquid items.

In developing this jug for mass production and volume handling,

Alfred D. McKelvy, who is responsible for the success of Seaforth products

McKelvy thought up a new technique in decalcomania, and invented a closure for liquid containers which he patented. This closure, a plastic, simulates the old method of sealing with wax to make an air-tight seal. The Seaforth cap, of course, is removable, but it preserves the traditionally waxed look. An interesting characteristic of the stoneware jug is its ability to keep the contents cool on the principle of the water jugs used for centuries.



The Scotch theme is used throughout

The container for shaving soap pays homage, also, to its Scotch ancestry. It is a facsimile of the old sac cups which were kept filled with wine by tavern keepers and set in a row before the roaring fire place as a welcome for the expected guests. As an additional selling point, when empty, they make the perfect Tom and Jerry cup.

SCOTCH THEME USED THROUGHOUT

To complete the Scotch theme, tweed from the Seaforth country was photographed, and from this photograph, a paper was made to cover the packages. The brown and white coloring of the tweed itself was kept and it was not showy or fussy. This covering is used on all Seaforth packages with the exception of the Commando Kit for traveling. A brown and white herringbone tweed was elected for this, and not being able to get just what he had in mind, the resourceful Mr. McKelvy used for the photographic model a pair of slacks which he had purchased on his latest trip to the British Isles. The packaging has proven itself a happy choice, for the experts have bestowed upon it several awards.

Seaforth is presented in a package tailored to a man's taste

The next thing to be considered was the scent. The first sale would be easy to make on the strength of a properly presented package, but the second and third sales were the ones that would count, and there would be no such repeats if the whiskey jugs poured forth exotic feminine odors of magnolia and lily-of-the-valley. The scent must synchronize with the package, so Mr. McKelvy turned to the Scottish moors for heather, fern and peat moss. Many hours were spent in experimenting with various combinations of these three odors and dozens of them were thrown aside (Mr. McKelvy had no chemist, all formulas being his own brain children from beginning to end) but out of these experiments came nine blends that pleased. Which one would appeal most to his potential market? It was a hard decision, so he shifted the responsibility to the shoulders of the potential market itself. He arranged with a telegraph company to place the odors, labeled with a key letter, in several large receiving offices. Men sending telegrams were asked to indicate their choice. Out of the several thousand votes cast, a decided preference was shown for one odor—a preference greater than for all the other odors combined—and that odor became Seaforth. It was no eeny-meeny-miny-mo testing system, but one scientifically based upon consumer acceptance.

ITEMS CAREFULLY SELECTED

The co-ordination of packaging and scent arrived at, it was time to turn attention to marketing. Knowing that any merchandising line can be bogged down by overloading in numbers of items, and that real profits in business lie in a comparatively few fast-moving ones, Mr. McKelvy selected seven Seaforth products as essential to a man's needs in keeping well-groomed. These seven were to be sold either singly or in sets ranging from two to seven items. After the tests in the telegraph company, he was convinced he had a product that would appeal not to an exclusive few, but to men in all stations of life, so each item was priced at $1.00 to be well within reach of all. The line consists of shaving mug, men's soap, men's cologne, shaving lotion, talc, deodorant and hairdressing.

Now to present it to buyers in large department stores! They were the ones who could tell him if the products had any market value. He knew these men to be shrewd merchandisers, alert and more or less skeptical, for they are offered on the average of some ten or fifteen new products each week and whatever is accepted by them must, in their opinion, have immediate and rapid saleability. Having no previous reputation in the trade, he would have to "show them."

On his next trip East, Mr. McKelvy packaged sample containers of Seaforth—he filled the jugs himself from a water pitcher and sealed them by hand—to show between trains and in his spare time. It wasn't all clear-sailing. As he had thought the biggest hurdle to make was to sell them

on the idea that men were ready for a line of cosmetics. Some were willing to give it a try. The first order received was from B. Altman & Co., New York City, for $180. Joseph Horne in Pittsburgh bet a bottle of champagne that it wouldn't last 90 days, but taking a sporting chance, gave him an order for $28.80. Other charter members were Saks Fifth Ave., Bloomingdale, Bamberger, Abraham & Straus, Wanamakers and Strawbridge & Clothier in Philadelphia. And back in his own home town, within a stone's throw of his home-made laboratory, the Dayton Company. All in all, he carried back to his Minneapolis cellar $3,900 worth of orders, on the strength of which he moved into an empty store, hired a bookkeeper and a stenographer, and a girl to help him in the factory. He was up at six and working far into the night, to find time before and after office hours from his B.B.D. & O. duties. In a short time he was sending into the field top-notch salesmen whose earning figures were among those of the highest paid in any line—carrying out his conception that the product was one for wide distribution.

SEAFORTH MOVES EAST

Because more and more of his time was required in the East, and because of manufacturing advantages, it was decided to move the company to New York in October, 1942. It was somewhat of a Brigham Young migration, as every key executive came along with him, selling their homes and taking their kids from school. The settlers were divided between the general offices occupying a large part of a floor at 10 Rockefeller Plaza, and the factory building in Greenwich, Conn. His initial capital of $2,500 has expanded until his factory is now supplying three times the number of single items than any other company, and the demand for Seaforth has become a year around one, whereas until recently 60 per cent of men's toiletries were sold during the four months preceding the Christmas holidays.

ADVERTISING PLAYS ITS PART TOO

Advertising and sales promotion have played important roles in the development of this company. From the start, Mr. McKelvy, as an advertising man, had in mind the advertising possibilities of the line and has kept unequivocally the masculine-appeal theme. He has advertised consistently with half and full-color advertisements in such outstanding magazines as *Life, Esquire, Colliers, Fortune, Vogue, Harper's Bazaar, Woman's Home Companion, Time* and *Look*. Sales promotion material, displays and catalog all bear Mr. McKelvy's mark, and follow his precept of investing in quality.

The years since the birth of the men's cosmetic industry have been difficult ones for business, years of complicated restrictions, scarcities of raw materials, shortages of paper for packaging, insufficient transportation facilities and labor shortages. There have been many business failures. So the record of Seaforth is one that reflects the soundness of Seaforth products and of Seaforth merchandising, and further, the clear thinking and perception of the company's management.

Odor Preferences

Aumueller, working at the Armour Research Foundation, has made an attempt to systematize the preferences of human beings for certain odors. One of the reasons that smell preferences are so difficult to classify is the fact that the mechanism which is responsible for smelling and tasting probably is extremely complex, since these responses apparently are initiated by chemical reactions occurring on the surfaces of the nose, throat, and tongue when minute quantities of the aromatic or flavorful substances come in contact with them. Obviously, such reactions must vary according to the nature of the chemical substances involved. Aside from the complexity of the chemical compounds which stimulate taste and smell responses, the complicated physiology of the lingual taste buds and sensitive mucosa of the other structures, is an additional factor which interferes with proper classification.

It is well known that no strict line of demarcation exists between the functions of smell and taste. With rare exceptions, the two organoleptic mechanisms supplement one another and, in fact, even reinforce one another to such an extent that it is practically impossible to distinguish one sensation from the other.

Prior to making a survey of the reactions of several hundred persons, Aumueller attempted to simplify the problem by arbitrarily dividing odors into the following six categories: *flowery* (*e.g.*, rose, violet, jasmine, heliotrope, lavender, lilac); *fruity* (*e.g.*, orange, lemon, pineapple, peach, apple); *spicy* (*e.g.*, cinnamon, clove, nutmeg, sage, chocolate, tea, vanilla); *resinous* (*e.g.*, camphor, cedar, pine, menthol); *burnt* (*e.g.*, coffee, maple, tobacco, tar); *putrid* (*e.g.*, rubber, onion, garlic, sauerkraut, fish, gasoline). The tabular results were so arranged as to indicate the percentages of those who liked, disliked, were neutral to, or did not respond to a certain aroma. Among the *flowery*, rose and lilac were favored by more than 80 per cent; of the *fruity*, strawberry and apple were liked by more than 66 per cent; of the *spicy*, wintergreen and chocolate topped the list, being preferred by more than 65 per cent; of the *resinous*, pine was favored by 83 per cent; and of the *putrid* aroma, sauerkraut was pleasant to 21 per cent.

Of the various odors submitted or tested, the following dislikes were registered: heliotrope was disliked by 16 per cent; olive oil by 70 per cent; vinegar by 54 per cent; sage by 31 per cent; caraway by 28 per cent; nutmeg by 27 per cent; turpentine by 63 per cent; camphor by 34 per cent; tar by 52 per cent; tobacco by 36 per cent; perspiration by 97 per cent; garlic by 92 per cent; rubber by 81 per cent. Among the interesting general findings was that men showed slightly greater preference for resinous and burnt aromas over women; women usually prefer flowery, fruity, and spicy odors; older persons have decided preferences for certain odors such as onion, garlic, jasmine, and heliotrope; chocolate is preferred by the younger individuals included in this study. *(The Merck Report, January, 1945.)*

New Zealand Lemons

New Zealand's 1943-44 lemon crop was reported good. The reported volume was 113,157 cases. This is much heavier than the previous year, though below the record crop gathered in 1940-41.

Survey of Recent Cosmetic Patents

Registered agent before the U. S. Patent Office discusses U. S. and foreign patents . . . Any inquiries relating to patents and trade marks will be met with prompt attention . . .

by I. J. FELLNER, Ph.D.

Synthetic Waxes. Theodore F. Bradley, Stamford, Conn., to American Cyanamid Co., N. Y. *U. S. 2367712, Jan. 23, 1945.* A composition comprising at least 50 per cent by weight of paraffin wax and an ester formed of omega-hydroxydecanoic acid and octadecylamine, heptadecylamine, or hexadecylamine, said composition having a melting point substantially above that of paraffin wax

Washing and cleaning agent. John J. Spiegler, Newark, N. J. *U. S. 2367971, Jan. 23, 1945.* To a mixture of about 6 parts by weight of sodium hydroxide (38°), 22 parts of sodium-silicate (36°), and 28 parts of borax, is added about 22 parts of hydrogen peroxide of 30 per cent and 22 parts of sodium silicate, the mixture is stirred until it assumes gelatinous consistency, poured onto a surface and permitted to dry.

Chewing gum material. George Spiller, Wilmington, Del., to Hercules Powder Co., Wilmington, Del. *U. S. 2367380, Jan. 16, 1945.* The chewing gum material comprises a crystalline maleic product of a rosin compound selected from the group of rosin acids and rosin acids esters, and a gum selected from the group of chicle and rubbers.

Lipstick case. Rudolph Berls, New York, *U. S. 2367992, Jan. 23, 1945.* The case consists of an elongated cylindric holder and a cover adapted to enclose the greater part of the holder and rotatable thereabout. The cover has an aperture having the outline of lips and the holder has an aperture of equal size and shape so that by turning the cover relative to the holder the said apertures will be brought into register and expose the lipstick to view through the lip-form outline.

Brushless shaving preparation. Richard Thomas, Bromborough, England, and Harry Whitham, Upton, Wirral, England, to Lever Brothers Co., Cambridge, Mass. *U. S. 2366759, Jan. 9, 1945.* The non aqueous brushless shaving stick is adapted to be applied directly to the face and is formed of a mixture of the following ingredients: 30 to 60 per cent of a vegetable oil, 30 to 50 per cent of a waxy substance, 10 per cent of an emulsifying agent of the glycerol ester type for imparting hydrophilic properties to said preparation.

Process for making synthetic menthol. Alfred Ofner and Eric C. Kunz, Montclair, N. J. *U. S. 2366749, Jan. 9, 1945.* The process consists in crystallizing synthetic menthol from de-mentholized Japanese, Chinese or American peppermint oil or distilled terpenes.

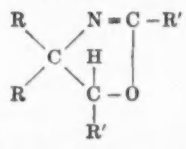
Citrus oil flavoring materials. Chester H. Epstein, Highland Park, and Nathan R. Gotthoffer, Grayslake, Ill., to Grayslake Gelatin Co., Grayslake, Ill. *U. S. 2367269, Jan. 16, 1945.* Citrus oil flavors are conserved and the development of a terpene flavor therein is retarded by dissolving food gelatin and solid edible acid material in water, adjusting the gelatin solution to a pH in the range from 3.0 to 4.2, forming a dispersion in said solution of the material containing citrus flavoring oil, and convertng the resulting dispersion into dry gelatin form, whereby the citrus oil is housed in and protected by the resulting acidified gelatin mass.

Drying composition for nail polish. Rowena Curry Hickey, Omaha, Neb., and Lorenzo Donarico, Omaha, Neb. *U. S. 2366260, Jan. 2, 1945.* The liquid preparation comprises as its essential ingredients 24 parts of olive oil, 1 part of castor oil and 2 parts of denatured alcohol.

Gelatinous material. To Industrial Patents Corp., Chicago, Ill. *Canadian 425450, Feb. 6, 1945.* The viscosity of gelatinous material is increased by adding thereto an amount of deacetylated chitin.

Improving tall oil soap. To Colgate Palmolive Co., Jersey City, N. J. *Canadian 425427, Feb. 6. 1945.* Tall oil soap is improved by continuously countercurrently extracting black liquor with a liquid high molecular weight fatty material having at least 8 carbon atoms, and esters thereof under non oxidizing conditions to recover phenolic and unsaponifiable materials therefrom.

Astringent preparations. Herbert L. Wampner, Burlingame, Calif., to Commercial Solvents Corp., Terre Haute, Ind. *U. S. 2368075, Jan. 23, 1945.* A cosmetic astringent composition comprising a water-soluble strong acid salt of a polyvalent metal and the reaction product of lactic acid and oxazoline having the following structural formula:



in which R represents a hydrogen, a hydroxymethyl, or an alkyl, and R′ stands for a hydrogen or an alkyl group.

Timely Survey of Ocimum Oils

Concluding discussion of oils distilled from various Ocimum species . . . These essential oils have lately attracted the attention of dealers and consumers in this country . . . Some lots have already been imported

by DR. ERNEST GUENTHER

Chief Chemist, Fritzsche Brothers, Inc., New York, N. Y.

IN 1936 the J. R. Watkins Co. of Winona, Minn., started to experiment in the United States with the growing of *Ocimum canum* Sims. According to Thomssen[1] the plantings were transferred from Winona to Daytona Beach, Fla. Upon distillation 3,600 pounds of leaves and stalks yielded 18 pounds of oil and camphor mixture, 13¼ pounds obtained by direct distillation and 4¾ pounds by extracting the water. Camphor was separated from both the directly distilled oil and camphor mixture, and the product extracted from the water.

AMERICAN OCIMUM CANUM OIL

From the steam distilled mixture Thomssen obtained 6½ pounds of crude camphor and from the extracted product 2 pounds of crude camphor. This left 5¾ pounds of camphor-free oil from the steam distilled oil and 3¾ pounds of oil from the extracted product. The total yield of camphor from the total amount of oil, therefore, was 47.2 per cent and the yield of oil in the greens produced was 0.5 per cent from the first cutting. Thomssen considers it unfortunate that perennials do not thrive very well in Florida and, as a result, the second growth of the shrub is not very satisfactory.

The work was later continued in Michigan to discover whether the seed could be produced also in a cooler climate.

According to Thomssen,[2] there could be produced about 400 pounds of camphor-oil mixture per acre by three cuttings, provided the yield of herb can be approximated to that produced in Africa. This would yield approximately 200 pounds of camphor and 200 pounds of oil as a first year crop, and more in the second year.

Dr. Ernest Guenther

CHEMICAL COMPOSITION

The oil contains considerable amounts of camphor. Charabot[3] reported an oil distilled in Kenya Colony which upon standing separated 35 per cent of camphor, a further portion remaining liquid in the oil. Charabot suggested this type of *Ocimum canum* oil as a source of natural camphor.

According to trade news reports,[4] an oil distilled in Khartum (Sudan) from the dried leaves (yield about 5 per cent) of supposedly *Ocimum kilimanjaricum* contained at least 77 per cent camphor aside from terpenes (see also oil of *Ocimum kilimanjaricum*).

Knishevetskaya[5] investigated the volatile oil of the hybrids F_1 *Ocimum* sp. No. 49 × *Ocimum canum* for the purpose of studying the genetics of chemical characteristics and the direction of possible new chemical formation from remote hybridization of various plant types. Whole plants cut during the period of full blossoming were used for distillation.

The oil of the hybrids contained borneol (not present in any of the parent plants) but no linalool (which was present in one of the hybrids).

The oil contained also

17.7% methyl chavicol (against 65.0 per cent in Ocimum sp. #49)
and
18.2% camphor (against 65.0 to 70.0 per cent in Ocimum canum).

The results of the experiments indicate that considerable changes might take place in the synthetic activity of the plants under the influence of remote hybridization.

C.
CITRAL TYPE OF *OCIMUM CANUM* OIL

According to Tayal and Dutt[6] the shrub *Ocimum canum* Sims contains on an average 0.7 per cent of essential oil which can be easily isolated by steam distillation. The oil obtained by these authors had an intense and characteristic odor of lemon with an appreciable note of lavender; it contained over 68 per cent of aldehydes, calculated as citral (sodium bisulfite method). From the aldehydic portion a small quantity of methyl hep-

[1] *Drug & Cosmetic, Ind.* Nov. 1938, 548.
[2] *Ibid.*
[3] *Bull. Jardin Colonial*, 1903. — See also Charabot, "*L'Ocimum canum*, source naturelle de camphre droit," *Acad. d' Agriculture de France* (Extrait due Procès Verbal de la Séance du 21. Décembre 1927).
[4] *Oil, Paint Drug Reporter* 134 (1938), No. 25, 5.
[5] *Trudy Gosudarst. Nikitskogo Botan. Sada* 21 2 (1939), 29.—*Khim. Referat. Zhur.* 6 (1940), 128. — *Chem. Abstracts* 36 (1942), 5207.
[6] *Proc. Nat. Acad. Sci. India* 8 (1938), 120.

tenone and citronellal together with a large proportion of citral was isolated, while from the nonaldehydic portion, linalool, geraniol, citronellol and esters of these alcohols were isolated. The oil, according to Tayal and Dutt, appears to be a good source of citral.

According to Snegirew,[7] the oils distilled from the hybrids of *Ocimum canum* L. and *Ocimum gratissimum* (?) contain the constituents present in the oils of the two parent plants. Thus, the camphor content of one hybrid ranged from 5.0 to 27.0 per cent, the eugenol content from 5.0 to 29.0 per cent. A higher content of camphor was usually associated with a correspondingly higher content of eugenol. The oils of another hybrid contained more than twice as much eugenol as the oil from *Ocimum gratissimum*, but the camphor content was never higher than that of the oil from *Ocimum canum*. Snegirew came to the conclusion that hybridization experiments with aromatic plants would be of great benefit in the industrial production of volatile oils.

OIL OF OCIMUM GRATISSIMUM L.

The oils distilled from *Ocimum gratissimum* L. are characterized by their high phenol content, the phenols consisting mainly of thymol or eugenol. *Ocimum gratissimum* L. occurs in tropical West Africa, in the Seychelles and Comoro Islands, also in Madagascar. A number of samples have been described in literature, but the oil has not attained any commercial importance.

A. THYMOL TYPE

An oil distilled on the Ivory Coast and examined by Roure-Bertrand Fils[8] had the following properties:

Specific Gravity at 15°	0.9105
Optical Rotation	+0°58'
Phenol Content (mainly Thymol)	44.0%
Solubility	Soluble in 1.2 vol. of 80% alcohol.

Rolland[9] reported that *Ocimum gratissimum* L. was cultivated in Dabakala (Ivory Coast), the fresh herb yielding on an average 0.6 per cent of oil containing 56.0 per cent total phenols and 39.0 per cent thymol.

Schimmel & Co.[10] examined a similar oil from Central Africa which had these properties:

Specific Gravity at 15°	0.9055
Optical Rotation	+0°50'
Refractive Index at 20°	1.49373
Acid Number	0.4
Ester Number	3.5
Phenol Content (mainly Thymol)	35.0%
Solubility	Not clearly soluble in 10 vol. of 70% alcohol; soluble in 9.0 vol. and more of 80% alcohol with slight opalescence; soluble in 0.5 vol. and more of 90% alcohol.

Glichitch and Naves[11] described oils of *Ocimum gratissimum* L. distilled on the Ivory Coast, in the French Congo, on the Comoros and in Grasse which contained from 23.0 to 44.0 per cent of phenols, mainly thymol with traces of carvacrol.

B. EUGENOL TYPE

An entirely different type of *Ocimum gratissimum* oil is that which contains as main constituent not thymol but eugenol. It remains doubtful whether the plant from which this type of oil is distilled is actually *Ocimum gratissimum* L. or perhaps an allied species or variety. The possibility cannot be excluded that we have here a typical case of physiological forms. Such an oil distilled in Mehé (Seychelles Islands) was described by the Imperial Institute[12] after the plant was identified in Kew as *Ocimum gratissimum* L. The yield of oil was 0.1 per cent. It had the following properties:

Specific Gravity at 15°	0.995 to 0.996
Optical Rotation	—12°42' to —14°6'
Refractive Index at 20°	1.526 to 1.532
Solubility	Soluble in 0.7 vol. of 80% alcohol.

Such an oil was examined by Roberts;[13] it contained:

16.0%	terpenes, mainly ocimene
55.0%	phenols, mainly eugenol
5.6%	phenolethers, calculated as methyl chavicol
13.0%	alcohols, probably linalool
0.6%	esters
9.8%	residue and losses.

This type resembles oil of *Ocimum basilicum* L. var. *selasih mekan* distilled by Van Romburgh[14] in Java.

DISTILLED IN MADAGASCAR

Antoine Chiris[15] described an oil of *Ocimum gratissimum* L. distilled in Madagascar and the Comoro Islands which contained: *

12.0%	ocimene
3.0%	polyterpene compounds and cadinene
89.0%	eugenol
Traces of	phenols with an odor of creosol and guaiacol
*104.0%	

Later Glichitch and Naves[16] investigated other oils of *Ocimum gratissimum* L. distilled on Madagascar and the Comoros, and reported these properties:

Specific Gravity at 15°	0.9980 to 1.0000
Optical Rotation	—26°16'
Refractive Index at 20°	1.5289
Saponification Number	4.2 to 11.2
Solubility	Soluble in 1.0 vol. and more of 75% alcohol.

The oils contained:

12.0%	d-α-pinene and ocimene *
Traces of	amyl alcohol
3.5—3.8%	l-linalool and α-terpineol
62.5%	eugenol
Traces of	other phenols
Small quantities of	methyl chavicol
15.0%	sesquiterpenes, mainly strongly laevorotatory cadinene
3.0%	polyterpenes

Glichitch and Naves claimed that the oils were distilled from pure *Ocimum gratissimum* L. and concluded that morphologically identical plants in some cases yield oils of entirely different composition.

According to Knishevetskaya,[17] a variety of *Ocimum gratissimum* yielding 0.3 per cent of volatile oil was cultivated in the Nikitin Botanical Garden. Three distillations were made during various periods of growth in order to study the dynamics of the accumulation of oil and the content of eugenol. It was found that the time of mass blossoming coincides with the optimum for harvesting and treating the plant material. The volatile oil is contained principally in the leaves and blossoms. After one to two days, the harvested plant loses much of its eugenol, after eleven days the content of eugenol decreases to 10 per cent.

The essential oil has a specific

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[7] *Lenin Acad. Agr. Sci. Inst.* III (1936), 245; — according to *Ber. Schimmel & Co.* 1938, 172.
[8] *Repts. Roure-Bertrand Fils* Oct. 1913, 21
[9] *Perfumery Essential Oil Record* 14 (1923) 154.
[10] *Ber. Schimmel & Co.* April 1914, 73.
[11] *Chimie & industrie* 29 (1933), 1029.
[12] *Bull. Imp. Inst.* 16 (1918), 32.
[13] *J. Soc. Chem. Ind.* 40 (1921) T. 164.
[14] *Verslag Plantentuin Buitenzorg* 1898, 28. 1901, 58. — *Verslag Akad. Wetenschappen Amsterdam* 1900, 446; 1904, 700; 1909, 15.
[15] *Parfums France* 7 (1929), 186.
[16] *Op. cit.*
[17] *Doklady Vsesoyuz. Akad. Sel'skokhoz. Nauk im. Lenina* 6 (1940), 15. — *Khim. Referat. Zhur.* 9 (1940), 107. — Chem. Abstracts 37 (1943), 722.
* The percentages indicated total above 100 (the author).

gravity of 1.0118 and a refractive index at 18° of 1.5220.

It contained:

7-8% myrcene
20-30% monocyclic terpenes
70% eugenol.

OIL OF OCIMUM VIRIDE WILLD

Ocimum viride Willd., the so-called mosquito plant, is said to possess mosquito repellent properties.

It occurs in tropical West and East Africa, also on the Seychelles Islands, in Madagascar and New Caledonia. Steam distillation yields from 0.35 to 2.59 per cent of a volatile oil.

A number of samples have been described in literature, but the oil has not attained any commercial importance.

PHYSICO-CHEMICAL PROPERTIES

Gildemeister and Hoffmann[18] suggested the following rather wide limits:

Specific Gravity at 15°	0.910 to 0.933
Optical Rotation	±0°0' to ±1°30'
Refractive Index at 20°	1.494 to 1.504
Phenol Content (Thymol)	18.0 to 65.0%

According to a report of the Imperial Institute,[19] experimental plantings of *Ocimum viride* proved successful on the Seychelles Islands. It was estimated that the herb could be harvested five to six times a year. The oils obtained by steam distillation had the following properties:

	Four Month Old Plants	Eight Month Old Plants
Yield of oil, calculated upon the fresh herb	0.54%	0.50%
Specific Gravity at 15°	0.942	0.924
Optical Rotation	+1°5'	+0°36'
Phenol Content	62.0%	52.0%

Glichitch[20] described an oil distilled from *Ocimum viride* Willd. planted in Grasse (A.M., France) from Madagascar seed. The yield was 2.6 per cent. It possessed a characteristic odor of thymol and had these properties:

Specific Gravity at 15°	0.9104
Optical Rotation	+0°54'
Refractive Index at 22°	1.4962
Ester Content, calculated as Linalyl Acetate	1.96%
Combined Alcohol Content	1.54%
Free Alcohol Content	30.99%
Phenol Content	38.00%
Solubility	Soluble in 1.5 vol. of 80% alcohol.

The same author also reported about an oil of *Ocimum viride* from New Caledonia which analyzed as follows:

Specific Gravity at 25.5°	0.9235
Optical Rotation	+1°30'
Refractive Index at 22°	1.4945
Ester Content	0.73%
Combined Alcohol Content	0.58%
Free Alcohol Content	25.76%
Thymol Content	18.00%

CHEMICAL COMPOSITION

Thymol, the main constituent of *Ocimum viride* oil, was identified by Goulding and Pelly.[21] Later Glichitch[22] reported the occurrence of other compounds in an oil distilled in New Caledonia.

The presence of the following constituents has been established:

d-limonene	
α- and γ-terpiene	Nitrosite m.p. 153-155°.
dipentene (?)	Presence possible.
terpineol (?)	Presence probable.
thymol	M.p. 50-51°; phenylurethane m.p. 107-107.3°.

The oil contains from 18 to 65 per cent phenols, mainly thymol. According to Glichitch, carvacrol is not present.

According to an anonymous writer,[23] the leaves of *Ocimum kilimanjaricum* growing in the Sudan upon steam distillation yielded 5.0 per cent of a volatile oil which contained about 77.0 percent total camphor. The camphor expressed from the oil was considered to be of normal quality and the residual oil resembled light camphor or spike lavender oil.

Because of its high camphor content it seems doubtful whether this oil was actually distilled from *Ocimum kilimanjaricum*, rather than from *Ocimum canum*, camphor type.

OIL OF OCIMUM SUAVE

The commonly called tree basil is a much branched shrub growing to a height of about eight feet and native to India and Africa.

The essential oil contains moderate quantities of eugenol. Two samples distilled in the Belgian Congo and analyzed in the New York laboratories of Fritzsche Brothers, Inc. had the following properties:

	I	II
Specific Gravity at 15°	0.953	0.954
Optical Rotation	—20°0'	—19°35'
Refractive Index at 20°	1.5210	1.5210
Acid Number	3.7	2.8
Saponification Number	7.5	2.8
Phenol Content (Eugenol)	13.5%	14.0%
Solubility at 20°	Soluble in 0.5 to 1.0 vol. and more of 90% alcohol.	Soluble in 0.5 vol. and more of 90% alcohol.

OIL OF OCIMUM KILIMANJARICUM

The oil distilled from *Ocimum kilimanjaricum* is somewhat similar to the eugenol type oil of *Ocimum gratissimum*, and during the last few years has been produced in British East Africa, especially in the Belgian Congo. The phenol content of this oil varies around 30 per cent.

Two samples of oil of *Ocimum kilimanjaricum* distilled in the Belgian Congo and analyzed in the New York laboratories of Fritzsche Brothers, Inc. had the following properties:

	I	II
Specific Gravity at 15°	0.964	0.965
Optical Rotation	—1°48'	—1°54'
Refractive Index at 20°	1.4959	1.4963
Acid Number	3.7	3.7
Saponification Number	3.7	6.5
Phenold Content (Eugenol)	30.0%	31.0%
Solubility at 20°	Soluble in 3.0 vol. of 70% alcohol, opalescent in 10 vol.	Soluble in 0.5 vol. and more of 80% alcohol.

The eugenol content of these oils is similar to that of *Ocimum Nakurense Gürke*, as reported by Beckley.[24]

According to an anonymous writer,[25] an oil of *Ocimum suave* produced in Tanganyika had these properties:

Specific Gravity at $\frac{15.5°}{15.5°}$	0.9696
Optical Rotation at 21°	—22°15'
Refractive Index at 20°	1.5188
Phenol Content (Eugenol)	53.0%

This oil was very similar to oil of *Ocimum gratissimum*, eugenol type, from the Seychelle Islands.

[18] *Die Ätherischen Öle*, 3d Ed., Vol. III, 921.
[19] *Bull. Imp. Inst.* 15 (1917), 322.
[20] *Bull. soc. chim.* IV, 33 (1923), 1536.
[21] *Proc. Chem. Soc.* 24 (1908), 63. — Bull. *Imp. Inst.* 6 (1908), 209.
[22] *Bull. soc. chim.* IV. 33 (1923), 1536.
[23] *Bull. Imp. Inst.* 39 (1941), 217. — *Chem. Abstracts* 36 (1942), 615.
[24] *East African Agr. J.* 1 (1936), 469.
[25] *Bull. Imp. Inst.* 39 (1941), 217. — *Chem. Abstracts* 36 (1942), 615.

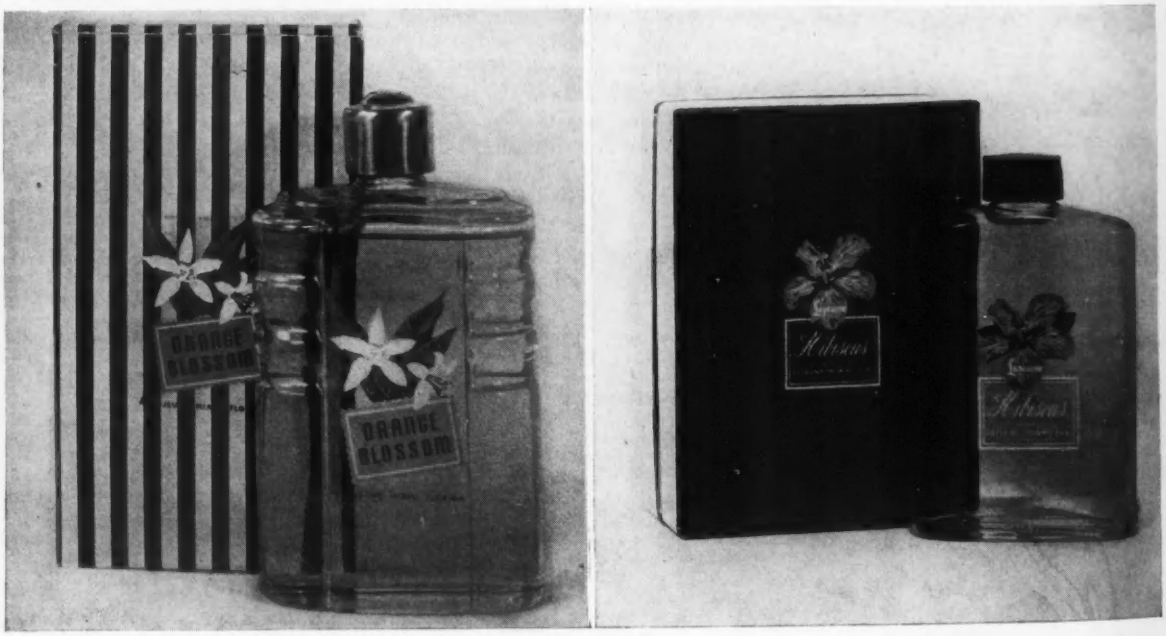
Packaging Portfolio

REVLON: "Russian Sable," the newest color created by Revlon, is one of the highest styled shades in nail enamel and lipstick to reach the market. "Russian Sable" face powder, an unusual tan shade, completes the color harmony.

REVLON

LEJEUNE: Hibiscus and Orange Blossom are both new colognes presented in striking packages. The Hibiscus cologne is shown in the two ounce size and is labelled with a pink, white and green decalcomania. The box is dark blue, hinged and finished in white linen paper. Orange Blossom cologne is shown in the four ounce size and labelled with a decalcomania which simulates Florida orange blossoms. It is packaged in a black and yellow striped box.

LEJEUNE



REX PRODUCTS

HELENA RUBINSTEIN

REX PRODUCTS: A genuine leather compact, Alligator grained, with a Mock Tortoise back, is the latest in style and finish. Smartly-designed, this case measures 3⅜ inches round in diameter having a spacious interior. It is fitted with an attractive puff and ample mirror.

HELENA RUBINSTEIN: Herbal hand cream and lotion is recommended by Helena Rubinstein for complete hand care. It is suggested that the cream be massaged thoroughly into the hands and wrists just before retiring. The cream is packaged in a white stock jar with the Rubinstein gold label.

ELIZABETH ARDEN

ELIZABETH ARDEN: Newest addition to the Elizabeth Arden family is Mille Fleurs Flower Mist. Presented in the famous eight ounce pinch bottle, the delightful fragrance of a thousand flowers is light, sweet and longlasting.

POND'S: After long and careful research, Pond's presents its Make-up Pat, a new cake foundation which gives a smooth and natural effect. It is packaged in a slim case of Pond's green, with white dreamflower design. Make-up Pat comes in every shade.

POND'S

New Legal Decisions Aid the Cosmetic Trade

Manufacturer not liable for injury sustained by a person not expected to use merchandise . . . Patent for floating soap upheld

by LEO T. PARKER
Attorney at Law, Cincinnati, Ohio

DURING the year 1944 the higher courts in the United States rendered many interesting and important decisions involving manufacturers and sellers of cosmetics, soap, flavoring, etc. Due to present unusual conditions all readers should keep abreast with modern law, particularly because a great percentage of these new decisions actually modify and reverse the recognized law of only a few years ago.

Therefore, in this article we shall briefly review many important 1944 decisions in view of imparting to readers data of these new and modern citations for future reference—first, to use as a guide to avoid similar litigation and second, to assist winning unavoidable legal controversies during 1945.

PRICE CONTROL CONTRACT VALID

Under modern trade conditions a contract is not void because it imposes restraint upon competition, if that restraint is reasonable. Therefore, contracts are valid by which a retail dealer agrees to maintain minimum prices for a named product.

For instance, in Associated Perfumers, Inc., v. Andelman, 55 N. E. (2d) 209, reported July, 1944, it was shown that a company is engaged in the manufacture and wholesale distribution of branded drugs, cosmetics, and other articles usually offered for sale in drug stores.

The company entered into a contract with a druggist by the terms which the latter agreed to sell the company's products at a stated price. Also, the druggist agreed to purchase $1,800 worth of merchandise annually. The druggist breached the contract and the company sued for damages.

The druggist contended that the contract was void, but the higher court held the druggist liable, saying:

"Its entirely legitimate purpose was merely to protect its own good will and to preserve its dealer system by prescribing the sale by any dealer of unknown and possibly inferior brands of merchandise. As such it was not an unreasonable restraint at common law. Under modern trade conditions a contract is not void at common law because it imposes restraint upon competition, unless that restraint is unreasonable, and tends to the prejudice of the public. . . . the price maintenance clause of the contract is valid. Agreements not to resell for less than the price fixed by the manufacturer have been held valid."

Another important point of law in this case involved assignment of a trade-name. This court held that an assignment of a trade-name is valid even though a company assigns only a part of its business with the trade-name.

Also, see Pepsodent Company v. Krauss Company, 9 So. (2d) 303, where it was shown that a state law provides that contracts are valid which stipulate prices for the resale of commodities bearing the sellers' trade-marks, and that willfully and knowingly advertising, offering for sale, or selling any commodity at less than the stipulated prices is unfair competition.

The higher court held that a contract is valid under which a druggist agreed that he would not resell a commodity at less than the minimum retail or resale price specified by the manufacturer. The court said:

"The purpose of the Act as stated in its title is 'to protect trade-mark owners, distributors and the public against injurious and uneconomic practices in the distribution of articles of standard quality under a distinguished trade-mark, brand or name'."

TRADE-MARK INFRINGED

Recently, a modern higher court held that where ethical goods are sold and careless use of such goods is dangerous, greater care should be taken in the use and registration of trade-marks to assure that no harmful confusion results.

For example, in Campbell Products, Inc. v. John Wyeth and Bro., Inc., 143 Fed. Rep. (2d) 977, reported August, 1944, it was shown that a company registered in the United States patent office the trademark "Alulotion." The product is a poisonous, externally-applied lotion for the treatment of the highly contagious, skin-disease, impetigo contagiosa. In order to comply with the requirements of the Federal Food, Drug, and Cosmetic Act, since the main ingredient of the product is poisonous mercury, the company is required to state on the label "Ammoniated Mercury with Kaolin." The label points: "Poison—External Use."

Another company applied for a trade-mark on "Alutropin" for mouth-applied non-poisonous colloidal aluminum-hydroxide fortified with homatropinemethylbromide. The higher court refused to permit the latter company to register this trademark, and said:

"Since they are both sold from the same shelves in the drug stores, it is our view that the goods of the parties are of the same descriptive properties and that the trade-marks are con-

fusingly similar," was the opinion.

DECEPTIVE NAME HELD ILLEGAL

Generally speaking, the courts will not permit any form or construction of advertising or trade-mark which is likely to deceive the buying public.

For illustration, in Charles of the Ritz Distributors Corporation v. Federal Trade Commission, 143 Fed. Rep. (2d) 676, reported August, 1944, it was disclosed that a company advertised its cosmetic preparation "Charles of the Ritz Rejuvenescence Cream." The company is engaged in the sale and distribution of various cosmetics, one of which is a cream commonly known to the trade as a powder base or foundation cream for make-up. During the years from 1934 until December, 1939, the company sold and advertised Rejuvenescence Cream.

A suit was filed against the company to compel it to stop using this name and, also, to stop stating in its advertisements that the preparation brings to the user's skin "quickly the clear radiance . . . the petal-like quality and texture of youth," that it "restores natural moisture necessary for a live, healthy skin," and that it gives to the skin "a bloom which is wonderfully rejuvenating" and is "constantly active in keeping your skin clear, radiant, and young looking."

The Federal Trade Commission held that such advertising falsely represented that Rejuvenescence Cream will rejuvenate and restore youth or the appearance of youth to the skin, regardless of the condition of the skin or the age of the user. The commission stated that external applications of cosmetics cannot overcome skin conditions which result from systemic causes or from physiological changes occurring with the passage of time and that there is no treatment known to medical science by which changes in the condition of the skin of an individual can be prevented or by which an aged skin can be rejuvenated or restored to a youthful condition.

The company appealed to the higher court and proved that no one knew the ingredients in the cream. However, the higher court approved the commission's verdict, and said:

"Despite their lack of familiarity with petitioner's product, however, the general medical and pharmacological knowledge of the doctors qualified them to testify as to the lack of therapeutic value of the cream."

With respect to the company's argument that no one would believe that the cream would make them again young, the higher court said:

"While the wise and the worldly may well realize the falsity of any representations that the present product can roll back the years, there remains 'that vast multitude' of others who, like Ponce de Leon, still seek a perpetual fountain of youth."

WAREHOUSE LIABLE

A modern higher court has held that if a warehouseman converts stored merchandise he must pay the holder of the warehouse receipt an amount based upon the retail ceiling price established by the O.P.A., instead of the wholesale ceiling price.

For instance, in Zemel v. Commercial Warehouses, Inc., 38 Atl. (2d) 132, reported July, 1944, it was shown that a company purchased alcohol and chemicals at wholesale prices. The company delivered to a warehouseman forty-four drums of alcohol, each containing fifty-four gallons. Approximately eighteen months later the company tendered to the warehouseman the storage charges and demanded delivery of the forty-four drums. Thirty-eight drums only were redelivered to him, whereupon he instituted suit to recover damages for conversion of the six drums containing 324 gallons of alcohol.

During the trial testimony was given which proved that on the same day the company presented his warehouse receipt and demanded delivery of the alcohol, the Office of Price Administration had fixed a wholesale ceiling price on alcohol and had also fixed a retail ceiling price at a higher price.

The counsel for the warehouseman contended that he should be held liable only for the lower ceiling price of the 324 gallons of alcohol which he had converted. However, the higher court held the warehouseman liable on the basis of the high price per gallon, and said:

"The appellant (company) was in the retail business and we think it is a fair assumption that judgment should have been entered for an amount which would compensate appellant for the sales that he lost at that price," was the ruling in the case.

WHEN CEILING PRICE IS VOID

A modern higher court has held that a ceiling price is void on a commodity made from a product on which no ceiling price is established.

For illustration, in Bowles, Administrator, O.P.A. v. American, 56 Fed. Supp. 82, reported July, 1944, it was shown that the Government sued a company and alleged that it had sold $32,000 worth of malt syrup at prices which were in excess of the ceiling price. The alleged excess charges amounted to something over $32,000 and the Government claimed treble damages i.e., the sum of $96,-351.42.

The government lost this suit. The higher court held the company not liable because no ceiling price had been established for the barley from which syrup is manufactured. This court said:

"The complaint fails to disclose any basis for a claim for damages against the defendant (company), since the price legally permitted to be charged for malt syrup for the period here in question was not controlled by the General Maximum Price Regulation of April 28, 1942, nor by any other price regulation effective and applicable to the price of malt syrup during such period."

SOAP PATENT VALID

For illustration, in Lever Bros. Company v. Procter and Gamble Mfg. Company, 139 Fed. Rep. (2d) 633, an inventor obtained a patent on a process of producing a floating soap having a continuous aerated mass with a uniform dispersion of fine voids throughout and a characteristic texture and firmness similar to milled soap and shape-stability. The process comprised placing a soap mass containing less than about 25 per cent moisture into a closed mixing chamber, working the mass under pressure in the presence of air and, while in a plastic or semi-fluid condition, to uniformly distribute air throughout the mass, and then forming bars or cakes.

It was contended that the claim was void because it was too uncertain to furnish sufficient information of the process to persons versed in the soapmaker's art. It is interesting to observe that the higher court refused to agree with this contention,

when in arriving at a ruling it said:

"Our patent laws do not require an inventor to be a Lavoisier or a Pasteur. And we think, in this case, too much attention has been paid to fine-spun theories of higher chemistry and too little heed has been given to the intensely practical aspects of the soap-maker's art. . . . If he (inventor) has added a new and valuable article to the world's utilities, he is entitled to the rank and protection of an inventor."

TWO INVENTORS: ONE CLAIM

Under no circumstances will the United States Patent Office grant a patent when two or more inventors claim the same invention.

For example, in Colgate-Palmolive-Peet Company v. Coe, Commissioner of Patents, 144 Fed. (2d) 517, reported August, 1944, it was shown that patent claims for soap were copied from other patents for the purpose of provoking interference proceedings. The higher court refused to grant a patent to the inventor until the interference proceedings were determined.

WORKMEN'S COMPENSATION ACT

Considerable discussion has arisen from time to time over the legal question: Are employers compelled to pay Workmen's Compensation Insurance on bonuses given to employes?

For illustration, in Simpkins v. Martin Dye and Finishing Company, 36 Atl. (2d) 611, reported May, 1944, it was shown that an employe was hired to work 12 hours per day for five days a week for which he was to be recompensed 37½ cents per hour for the first eight hours of each day, and 56¼ cents per hour for additional hours. In addition he was to receive a bonus of 10 per cent of the total wages.

The higher court held that the total wages, plus the 10 per cent bonus must be reported in determining the weekly wage for the purpose of computing the workmen's compensation rate.

FINGER NAIL POLISH IGNITES

Modern higher courts consistently hold that all manufacturers who supply merchandise directly or through a third person are subject to liability for injuries to those whom the manufacturer should expect to use the merchandise. However, according to a recent higher court decision neither a manufacturer nor a distributor is liable for an injury sustained by a person not expected to use the merchandise.

For example, in Lawson v. Benjamin Ansehl Company, 180 S. W. (2d) 751, reported August, 1944, it was shown that a company manufactures and sells a finger nail polish remover which is harmless when used as intended. However, it contains a highly inflammable element and is not marked or labeled to show presence of this dangerous ingredient.

A woman purchased a bottle of the finger nail polish remover, known as "Gloriant Nail Polish Remover," and placed it on her table. One day a boy of about five years of age, who had never been to school, went to the dressing table and splashed all or part of the contents of the bottle of finger nail polish remover upon his clothing, and afterwards touched a lighted match thereto and set himself afire.

The boy was fatally burned and his parents sued the manufacturer to recover damages for death of the boy. The lower court held the manufacturer liable for $3,000 damages. The manufacturer appealed to the higher court which reversed the lower court's decision. In holding the manufacturer not liable, the higher court said:

"In this case, the finger nail polish remover was harmless for the use for which it was intended. Neither was it harmful to any other person when used as a finger nail polish remover. It was only when such finger nail polish remover was used in a manner never intended by defendant (manufacturer) that it was at all injurious."

EMPLOYMENT CONTRACT VOID

The courts in some states uphold the validity of contracts which restrict employes from accepting employment with competitors within a reasonable period after terminating the present employment. However, other courts hold such contracts void.

For illustration, in Felton Beauty Supply Company, Inc. v. Levy, 31 S. E. (2d) 651, reported December, 1944, it was shown that the Felton Beauty Supply Company made a contract with a salesman. A clause said: "Whereas, the company is engaged in the beauty supply business selling beauty supplies and the State of Georgia, Alabama and Tennessee have been traveled over by the representatives of the company and through advertising mediums, and a large, valuable and extensive trade has been established and maintained at a great expense to said company; the said Jack Levy (salesman) for one (1) year immediately following the termination of this contract will not call upon, solicit, sell, or endeavor to sell beauty supplies . . . to beauty shops and the customers of the company, within the State of Georgia, Alabama and Tennessee . . . ."

In violation to this contract the salesman terminated the employment and began selling for Savannah Beauty Supply Company beauty supplies of various categories in the State of Georgia and other states.

The Felton Beauty Supply Company filed suit and asked the court to grant an injunction against the salesman violating the contract. The higher court refused to grant the injunction, and indicated that the contract was void, contrary to public policy and an unlawful restraint of trade.

NOT LIABLE FOR CARTON DEFECTS

A higher court recently held that a manufacturer is not liable for defects in cartons in which bottles are placed for transportation and which defects result in injuries to persons who use them.

For illustration, in Rockwell v. Queen, 53 N. E. (2d) 528, the court records show facts, as follows: A consumer purchased six bottles contained in a carton. While carrying the same to his home the carton collapsed. The bottles fell to the sidewalk and were broken, and the purchaser sued to recover damages for injuries caused by flying glass.

The injured person contended that the manufacturer was liable because the carton collapsed due to negligence of its employes to inspect the carton to know that it was safe for use of consumers. The higher court held the company *not* liable, and said:

"Plaintiff (consumer) alleges merely that defendant (company) put the carton in circulation. If these be the ultimate facts, they fail to state a cause of action on an implied warranty as to fitness for a particular use or in an ordinary negligence case."

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FLAVORS

Why Glycerine Becomes Essential to the Flavor Industry

In former years glycerine was utilized chiefly in the production of beverages, flavors, candy and gum . . . Today, free from allocation, it is further used in new and improved products and processes

by GEORGIA LEFFINGWELL, PH.D.

THE real importance of glycerine as an essential material in the manufacture of flavors and related products may be gauged by the large quantities consumed yearly in this industry before the United States entered the war. Assuming 1941 to be a "normal" year, Government statistics[1] show that during this period 2,411,000 pounds of glycerine went into the production of beverages, flavors, candy and gum. A major proportion of this glycerine probably was utilized directly in producing flavoring compounds of various kinds. Today, when glycerine is free from allocation and again fully available, there are indications that its employment is further increasing as it finds use in new or improved products and processes.

DIFFICULT TO FIND SUBSTITUTES

The 1941 figures for glycerine consumption support the statement made by representatives of flavoring extract manufacturers that there is no adequate substitute for glycerine in their industry.[2] When glycerine was first placed on allocation it was not surprising that attempts were made to find substitutes. In this connection the Food Distribution Administration found it necessary to issue a warning on the possible dangers of the several materials being considered or offered for sale. In view of these incidents, a re-evaluation of the outstanding safety and wholesomeness of glycerine is in order.

SOME EXPERIMENTS CITED

Glycerine is a normal constituent of the body as a result of the digestion and assimilation of dietary fats and oils. Then, too, one cannot forget that it has had decades of wide use in the manufacture of food products. One could cite, too, the extensive and carefully controlled studies carried out at the University of Chicago and reported[3] in 1933. These not only established the safety of glycerine as a dietary addition, but demonstrated the fact that this fluid readily replaces carbohydrates, since it has about the same caloric value. These studies were carried out on both animals and humans.

Four years later, Holck,[4] in comparisons of glycerine with various glycols, showed experimentally that rats gained about the same in body weight as control animals when a high concentration (20 per cent) of glycerine was mixed with their solid food. Animals surviving much lower concentrations of three glycols tested showed weight losses or stunted growth. Very recently, work done at the Pennsylvania State College, Department of Agricultural and Biological Chemistry, has reaffirmed much of these findings.[5] Using 30 per cent concentrations, it was found that when rats received propylene glycol and glycerine diets, growth responses were generally increased during the glycerine periods and decreased during the glycol periods. While the glycerine diets were con-

sumed more rapidly because of their palatability, calculations showed that the glycerine-fed rats made greater gains per caloric unit of food intake.

NUTRITIONAL VALUE OF GLYCERINE

With these facts as a background, it is understandable why glycerine should be a preferred component of flavoring materials. However, safety and wholesome nutritional value alone would not account for its standing in flavoring manufacture. Glycerine has long been important in this field because it possesses physical properties that make its use an advantageous element in flavor formulation. [6, 7] From the standpoint of flavoring it may be said that glycerine serves as a humectant or hygroscopic agent, as a vehicle, as a solvent, as a sweetening agent, as a dispersing medium, as a penetrant and as an anti-freeze. It also has a certain degree of perservative action which augments the other anti-spoilage agents present in the compositions.

Glycerine is outstanding as a solvent and as such it has certain definite advantages, since it may be said to combine in this respect the actions of both water and alcohol. In addition to its superior solvent and extractant influence glycerine also serves efficiently as a blending agent and lends smoothness to the several components.

GLYCERINE REPLACES ALCOHOL

It has been said that glycerine menstruum is preferable to one of dilute alcohol; giving a finer product in the preparation of certain types of flavoring materials,[8] more particularly coffee extracts.[6] This, plus other factors, may perhaps help to explain the growing use of glycerine as a total or partial replacement for alcohol in the manufacture of many kinds of products or for the growing popularity of other types of glycerine-utilizing compositions like emulsions and pastes. The high cost of tax-paid alcohol has long been a considerable factor in the more or less conservative use of this product, but the situation is currently aggravated by the tight restrictions on alcohol as a war necessity.

The formulation of vanilla products, whether natural or artificial, exemplifies the way in which glycerine helps to meet the alcohol problem and yet provides high quality flavoring materials. More than three decades ago Kessler[9] suggested the use of alcohol-free pastes made from:

Vanillin	2 oz.
Coumarin	½ oz.
Glycerine	sufficient
Caramel color	sufficient
Glucose, to make	14 pints

In his procedure, the vanillin and coumarin are thoroughly mixed with a sufficient quantity of glycerine until a smooth paste results. The glucose is then added with thorough mixing and finally the caramel color is incorporated to give the desired shade.

Some years later, the Dutch authority, Gazan,[10] suggested an even simpler method for making a vanilla paste. He suggested the use of:

Vanillin, 100%	500 Gm.
Glycerine, pure	1000 Gm.

Very carefully heat the glycerine and vanillin on a slow flame and with continuous stirring. When the vanillin has dissolved completely remove from the heat source and cool on ice and stir continuously until a smooth paste is formed. Gazan recommends the concentration to be used as one-half to one gram per kilogram.

More recently, Lenth[11] has described an alcohol-free, glycerine-corn syrup solvent for vanilla which is inexpensive, fluid, stable and fermentation-free. Developed after considerable research at the laboratories of the Glycerine Producers' Association, the formula for making an excellent imitation vanilla flavor is:

Corn syrup (43°Bé)	6 lb. 1 oz.
Glycerine, U.S.P., 95%	2 lb. 10 oz.
Water	1 lb. 5 oz.
Vanillin	1.2 oz.
Coumarin	9.4 oz.
Caramel coloring	to suit

The current alcohol situation has stimulated interest in the preparation of emulsion flavors. One important result of this intensified interest has been the republication of de Groote's[12] very indicative work, originally done at the Mellon Institute in 1920, on the basic principles in the manufacture of emulsion flavors. This is a "must" source for those who wish to prepare such products. An important feature is the high endorsement given to the use of glycerine; the fluid being present in substantial quantities in all the indicative formulas presented by this worker. Illustrative is the very first formula of the series:

Gum acacia, finely powdered	4 oz.
Oil of lemon	8 oz.
Distilled water	4 oz.
Glycerine, C.P.	4 oz.

"Glycerine," says de Groote, "gives all the advantages of alcohol without any of its undesirable effects." He lays considerable stress on the preservative action of glycerine, and points to its advantageous use in conjunction with gums or other emulsifying agents. Glycerine, he notes, tends to prevent hard "skinning" on the surface or drying on the sides of bottles of emulsion flavors.

GLYCERINE IN FLAVOR COMPOSITION

Other sources indicate the value of glycerine in the production of emulsion flavoring compositions. Indicative is the following lemon oil emulsion from Bennett's[13] reference text:

Gum arabic	13 oz.
Terpeneless oil of lemon	20 oz.
Glycerine	40 oz.
Water to make	10 gal.

Mix the gum and glycerine then mix in the two lemon oils and to this slowly add the water with constant stirring. Beat intermittently until homogeneous and then pass through an homogenizer.

Flavoring compositions in the form of pastes have found increasing popularity during recent years. Here, too, the use of glycerine often provides not only the requisite solvent and flavor-disseminating action, but also the required hygroscopic effects to prevent drying out of the pastes and maintain them in a semi-fluid state under a variety of conditions. The employment of glycerine in vanilla pastes has already been indicated, but the fluid is a standard component of other kinds of flavoring substances as well. For example, it serves as a vehicle for the flavor in the production of the paste type of non-alcoholic compositions based on lemon and almond.[13]

However, glycerine-utilizing bases may be used as carriers for a wide variety of flavoring oils and compounds. Belanger,[14] in his practical text on formulations, presents much essential information as well as the following basic type formula for making paste flavors:

Glycerine	4 oz.
Glucose	6 oz.
Powdered sugar	8 oz.
Essential oil	as required
Color	sufficient

Heat the glucose but do not boil. Add the glycerine and the color, mix well and add the oil with thorough mixing. Finally work in the sugar to form a smooth paste.

According to Belanger, the quan-

tity of oils required per gallon of flavor is as follows:

Almond	10-1/4 dr.
Anise	3-7/8 oz.
Celery	3-3/4 dr.
Cinnamon	2-3/5 oz.
Cloves	2-3/5 oz.
Lemon	6-1/2 oz.
Nutmeg	2-3/5 oz.
Orange	6-1/2 oz.
Peppermint	3-7/8 oz.
Rose	2-1/4 dr.
Spearmint	3-7/8 oz.
Wintergreen	3-7/8 oz.

There is no standard, he observes, for artificial fruit oil flavors, but about 6 to 8 ounces per gallon is the proportion generally used. To make stronger flavors, more oil is used and this rule applies to both true and artificial flavors.

Powders have certain advantages as flavoring vehicles. Although glycerine, being a liquid and hygroscopic, would hardly appear to be a suitable ingredient of such products, nonetheless its solvent and flavor dispersing actions have been recommended for items of this kind. Indicative is the following type formula, given by Kessler[9] in which an essential oil is incorporated with cane sugar and glycerine:

Granulated cane sugar	65 lb.
Oil of bitter almonds	3 lb.
Glycerine, C.P.	2 lb.

The current, wartime difficulty of obtaining many natural flavoring essential oils and concentrates has focused increased attention upon the formulation of artificial flavoring bases and like products. Such artificial flavors are based very largely upon synthetics of a volatile note, and as pointed out by Poucher,[15] glycerine is often used as a vehicle for these substances. A large proportion of the representative artificial fruit flavor formulas presented by this well-known English authority contain substantial quantities of glycerine. Formulas from many other standard sources similarly indicate glycerine's role in making artificial flavoring compounds that have proved of value in the past and which should be of immediate interest under present conditions.[6, 14]

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Sugar and Confectionery

Demands for sugar in 1945 will exceed supplies available to the United Nations, necessitating a continuance of arrangements for allocating shares to the various consuming areas. Access to the former source of supply in the Philippines may be obtained through military success in the Pacific campaign, but such gains, if any, will probably be more than offset by requirements for rehabilitating liberated areas in Europe.

The confectionery industry of the United States, dependent in large measure on sugar supplies, will continue to be restricted in its production while sugar rationing continues. Candy production in 1945, as in the 3 previous years, will probably be held at 2½ to 3 billion pounds. But, the amount of candy to be found on the civilian market in 1945 probably will be even less than in 1943 and 1944.

The set-aside order No. 115 instituted in the latter part of 1944, directing that 50 percent of 5-cent candy items be made available for Government purchase, was only one of a number of indicators of an increased demand for confectionery by the armed forces. The end of hostilities in Europe and a consequent slackening of the movement of combat material to the continent will facilitate the shipment of candy abroad to the military establishment desiring candy as one of the "comforts of home." *Domestic Commerce, January, 1945.*

Canadian Alcohol Plant

A pilot plant has been in operation in Ottawa, Canada, for the production of alcohol from wheat. The plant, which is operated by the National Research Council of Canada, produces 10 pounds of butylene glycol and 6 pounds of ethyl alcohol from one bushel of wheat. Commercial production will be started in Saskatoon.

Granada, BWI, Lime-Oil

Exports of Lime oil from Granada, British West Indies, from May 25, 1944, through November, 1944, amounted to 1.57 tons, valued at $20,113.50.

Panama Sugar Situation

Sugar production in the Republic of Panama for 1945 is expected to be greater than during any preceding year, it is reported.

Chilean Sugar

Sugar production is up in Chile during the first four months of 1944 over the corresponding time for last year by 8,000 short tons. This year's figure is 50,000 tons. However, both years showed a decrease as compared to 1943.

British Guiana Sugar

Exports from British Guiana in the first ten months of 1944 included 850,741 gallons of molasses and 145,823 tons of sugar, as compared with 282 gallons and 100,261 tons in the corresponding period in 1943. Improved shipping conditions were largely responsible for the increase.

Portable Ice Cream Machine

A forty-gallon ice cream machine recently developed by the Quartermaster Corps, will make fresh ice cream available to troops stationed in jungles and remote locations.

The miniature ice cream factory, complete with cold storage compartment, weighs 1200 pounds, occupies a minimum of space and can be transported by truck or plane.

Seventy-nine inches long by 32 inches wide and 55½ inches high, it is equipped with both a five-horsepower air-cooled gasoline engine and a three-horsepower electric motor, so that it may be powered by electricity or gasoline, depending on field conditions. The frame and sheathing are aluminum and the cellular rubber insulation is half the weight of cork. Handles on the sides make movement by hand-carry possible.

The freezer has a capacity of 2½ gallons, and will produce a semi-frozen mix from the freezer in from 7 to 14 minutes, depending upon the outside temperature. It will operate in temperatures up to 120 degrees F.

When ready, the mix, in its semi-frozen state, is drawn off through a spout into half pint cardboard boxes which are then placed in the cold storage cabinet to harden.

The material used is a powdered ice cream mix, also developed by the Quartermaster Corps, to which nothing is added but an equal volume of water. The mix is furnished in vanilla only, but other flavors may be added on the spot if desired and available.

The capacity of the storage cabinet is 40 gallons either stored in 5-gallon cans, or packed in the square half pint containers, but the freezer can produce twice as much as that in an eight-hour shift. For large detachments, it is recommended that the machine be used in conjunction with the regular 25-cubic foot portable refrigerator where one is available. This combination can produce 80 gallons or 1,280 half pint packages per day.

French Beet-Sugar

Although accurate figures of the wartime activities of the French beet-sugar factories are lacking, newspapers report that since 1940 annual sugar production has been somewhat more than 500,000 metric tons, as compared with 858,900 tons in 1938-39 and 975,000 tons in 1937-38.

The French market absorbed most of the wartime production as German requirements demanded smaller percentages of sugar than of other products. Sugar output decreased because Germany took over large quantities of roots for conversion into alcohol.

In 1942-43, 265,000 hectares reportedly were planted to beets. The yield amounted to 7,000,000 metric tons of beets, of which 4,900,000 tons were used to produce sugar.

Lack of coal, retarded production. In the Nord district where about 70 per cent of France's beet sugar is turned out, the factories had not started work by the middle of November. About 10,000 tons of coal were allotted to the industry in November, with total requirements at about 400,000 tons. Consequently, the output of sugar in the 1944-45 season is expected to fall to about 300,000 tons.

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ANTOINE CHIRIS, LTD., LONDON, ENGLAND

by ARNOLD KRUCKMAN

ALCOHOL, as announced by WPB Chemicals Bureau, has been reduced approximately 10% for March. While this news is not happy, the reassuring aspect is that the supply is expected to be held steady at that figure until there is a definite change in the situation in Europe. This means, obviously, the toiletries and cosmetics industry will be able to obtain 60% of the quantity used during the base period. The method by which the commercial user procures what he needs is unchanged. You get what you can from your supplier. WPB Chemicals Bureau also announced there would be no isopropyl alcohol for March, and apparently no promises can be made for any period ahead.

SHORTAGE AND SURPLUS

It also was reported there would be no lanolin for March, which is disappointing because there was confident expectation that the usual allocation could be expected from WFA. There is some hope, however, that at least 75,000 pounds may be made available for April. It will be wise, however, not to depend upon it until the announcement is formally made. These days the domestic front is just as fluid as are many of the battle-fronts. There are no absolute certainties until the accomplished fact is achieved. Stearic acid is still tighter in supply than it was last month; the rated requirements are much more demanding. The situation appears to be so pressing that an Order is in preparation which will establish a specific control over stearic acid. Citric acid also is extremely short in supply. Apparently the military needs might conceivably absorb all that is available. There is a decided difference of opinion between WPB Chemicals Bureau and the WFA about the responsibility of the Government to the civilian in allocating materials such as citric acid.

Peroxides, required in some hair preparations, are becoming much scarcer because they are required in enormous volume for the bleaching of textiles needed in vast yardage by the armed services.

Early in March the prospect of tubes for civilian needs seems to be vanishing rapidly. There are rumors that all of the allocation for shaving-cream, tooth-paste, and tubes for similar needs will be cancelled. An order or amendment to M-115 crystallizing the present uncertainties into something definite is expected by or befor the middle of March.

A recent report of surplus property in possession of Defense Supplies Corporation, a part of RFC, states there are on hand in the St. Louis warehouse $400 worth of essential oils, presumably to be sold to the first applicant. Other materials of use to the toiletries and cosmetics industry are to be found in Atlanta, Chicago, Cleveland, Denver, Detroit, Kansas City, Los Angeles, New York, Richmond, St. Louis, Salt Lake City, San Francisco. In Salt Lake City the Defense Supplies Corporation has for sale $1,000 worth of perfume and flavor materials. There are some other unclassified botanical derivatives of interest to the industry in Cleveland and in Alaska, having a total value $6,615. Animal and vegetable waxes worth $3,031 may be found at Dallas, Richmond and Salt Lake City, and will be sold by the Defense Supplies Corporation. OPA announced a very high grade of crude talc produced in Esmeralda County, Nevada, might be sold f.o.b., Zurich, Calif., at $17.50 per ton. OPA reports this is the finest talc found in the West.

No word has been given out about the date for the freezing of set-boxes under Order L-239, an action which has been under discussion for some time. Apparently action is delayed because the various conferences and clinics have not yet provided the necessary clarification. Bottles appear to be one of the categories which are in most free supply. The whole field of glass is chiefly conditioned by transportation and gas fuel. Both are uncertain, and both lead Government people to watch the glass container situation closely. Closures are still free and are expected to be undisturbed for the immediate period ahead. The allocation of sheet metal or black plate for closures has not been as plentiful as it was the first quarter, but any deficit will be made up of "rejects."

FATS AND OILS PICTURE

European demand for fats and oils from the United States is tremendous, and home requirements are very large, but the supply for 1945 is regarded as considerably smaller, with particular shortages in grease, linseed oil, and lard. Charles E. Lund, Chief of Fats and Oils, Department of Commerce, is quite certain, however, that barring the unforeseen we have enough fats and oils this year for all essential needs. He points out that this year's deficit

of one billion pounds still leaves a total of 10,900,000,000 pounds, which exceeds the 1935-39 average by 3,700,000,000 pounds.

ROSE PETAL IMPORTS

It is reported four shipments of rose petals from North Africa have finally arrived in the United States. The consignees are undisclosed. The four shipments have a gross total weight of over 25,000 pounds. One shipment totals approximately 14,000 pounds; another, 10,000; the third, 2,000; and the fourth, 1,000 pounds. The probable arrival of the rose petals has been a matter of comment here for some months. There also has been gossip about the arrival of more lemon oil, and other products from liberated European countries. It is anticipated Lester Barber, Assistant Chief of Drugs and Pharmaceuticals Unit, in the Department of Commerce, who was sent to France to survey essential oils by the State Department, will be back in this country before this is published. No further public announcement has been made about the results of Barber's survey. Nor is it clear whether Barber will continue as an official of the State Department Auxiliary Service or return to Commerce. Secretary Henry Wallace has taken over Commerce since Barber's trip to France and apparently is actively engaged in shifting personnel and making innovations in the Department. It has been intimated that there have been changes in the section with which Barber was connected. The cosmetics and toiletries industry is keenly interested in Barber's future activities. He has both wide technical knowledge and much practical business experience connected with essential oils and other materials used by the industry.

PACKAGE INVESTIGATION

John P. McBride of the National Bureau of Standards reports trouble has recently been encountered with nail polish, liquid dentifrices, deodorants and other toiletries in liquid form, which have been found to consist of very much less per package than their declared contents. Apparently on behalf of other Government agencies the National Bureau of Standards is conducting a careful investigation of the packages. McBride reports that packers blame the shortages on evaporation and leakage caused by the closures which are made of "substitute" materials. . . . Caffeine was allocated in March only in part from domestic and imported sources for beverage use. . . . WLB Regional Boards are now empowered to approve wage rates up to 55c. per hour in voluntary cases when the increase is requested by the employer or jointly by employer and the union. Minimum wage rates may be raised to 50c. an hour without WLB approval, but the wage rate raised must be minimum. Any maximum wage rate above 50c. an hour must be approved by WLB. U. S. Supreme Court recently ruled that the Fair Labor Standards Act of 1938 covers piece rate employees as well as those paid by the hour.

FLAVORS AND ESSENTIAL OILS

Meanwhile, J. N. Taylor of the Chemical Unit recently made the statement, in a Commerce Department publication, that lack of shipping facilities has resulted in a large boost in the output of synthetic flavors and perfume materials in the United States. He emphasized that the 1943 production of aromatic chemicals totaled 17,531,000 pounds, more than double the output in 1940. He stresses the record is especially impressive in the light of the fact that the products are used in small amounts. He suggests the industry has served well the war effort since the synthetic aromatics have been used in well-flavored foods, beverages, and smokes, which have found their way into mess kitchens, galleys, and canteens all over the world, as well as in the United States. He points out the products are used not only as flavors and perfumes, but as industrial deodorants and to mask odors in paints, paper, ink, leather, rubber, textiles, and other much used materials. He predicts their war uses have prompted very decided scientific and technical advances in manufacture as well as utilization, and that the new and unique formulations spell broader consumer demand and much larger consumption after the war. Incidentally, the lend-lease program of $2,575,000,000 negotiated with France is expected to have some bearing on the essential oils transactions with the French. American business people are now able to obtain transportation abroad on surface ships by making application to the Bureau of Foreign and Domestic Commerce at any one of its 26 field offices, as well as in Washington, if their trips contribute "to the war effort or to the resumption of economic activities disrupted by the war and necessary for prompt restoration of peacetime conditions." The Treasury Department has issued licenses for trading, and will consider any reasonable application. Materials from France may be brought to this country in French ships as well as in American ships which have assigned cargo space under French supervision for shipments from France. The word is that shipments from North Africa now first go to the metropolitan area of France, and are re-shipped from French ports to the United States. Apparently the FEA adventure in acting as intermediary in bringing essential oils and floral products from France has not moved very rapidly. Some features of the contract proffered by the U. S. Commercial Company were not agreeable to the needs of the industry, and it is understood here that changes were suggested in a meeting held in New York. The proposed changes were tentatively accepted by FEA representatives at the meeting, subject to approval by the agency in Washington. At this writing the approval had not been announced. Nor has there been any further word about the activities of the emissary sent to France, Gerald Strauss, who was reported in Paris after a visit and conference with British Purchasing Commission officials in London. The impression is that the enterprise has virtually bogged down, so far as the essential oil industry is concerned.

SHORT LEAD STOCKS

The impression is that some supply of lead for civilian tubes was found amply justified, especially for tooth-paste, shaving-cream, and similar products. On March 1 the WPB Production Executive Committee of WPB announced lead had become so troublesome that for the second quarter of this year the Committee has allocated 1,800 tons of lead for the production of military tube needs, and 325 tons for civilian needs. Both civilian and military were forced to take cuts.

NEW PRODUCTS AND PROCESSES

X-Ray Spectrometer

North American Philips Co. has placed on the market the Norelco X-Ray Spectrometer, which the company states utilizes a new method of making quantitative and qualitative analysis of crystalline substances. By employing a direct-reading method this machine reveals the elements present, and determines the state of chemical combination in a given material. In operation, the specimen is powdered, mounded on a flat slide and inserted in the specimen holder. It there intercepts a fine X-ray beam and deflects portions of the beam at various angles over a quadrant scale. Identity of the material is given by its position on the scale. The makers claim that identification may be obtained in approximately ten minutes.

Mould-Proof Glue Palletizes Containers

National Adhesives has developed a quick-setting, mould-proof glue for palletizing corrugated or solid fibre shipping containers which has been approved by Headquarters, Army Service Forces and Navy Department, Bureau of Supplies and Accounts. The glue is designed to provide high shear strength, which prevents the side-slipping of units comprising the load, in combination with low tensile strength, which permits the easy separation of cases for distribution at advance bases.

Catalogs

The 1945 Plastics Catalog is now out. This volume contains over 1200 pages. A number of post-war designs are included, as well as a section on war applications. Also included are highlights on new materials, new technics, and pointers to reconversion. Extruding machines and moulding plant equipment are treated. The directory section contains ten complete directories to all branches of the plastics industry. Copies are available at $6.00 each in the U. S.

The American Fair Trade Council, Inc., has issued a pamphlet entitled, "Resale Price Maintenance—Stabilizer of Postwar Business." It contains six addresses which were delivered under the auspices of the Council, together with a foreword by the new president of that organization. Copies may be obtained without charge.

A new catalog on filter presses has been issued by T. Shriver & Co., Inc., Harrison, N. J. It is fully illustrated, and contains much useful information for those wishing to render a turbid liquid clear and brilliant. Copies may be obtained without cost.

The W. B. Connor Engineering Corp. has issued a comprehensive catalog on Kno-Draft Adjustable Air Diffusers. Such items as sizes and dimensions, dampers and accessories, performance data, specifications, air capacity tables, and installation drawings are included.

The new Merck & Co., Inc., price list is available. Copies may be obtained free.

The 9th edition of the classified directory of the Association of Consulting Chemists and Chemical Engineers is available without charge. Its 108 pages list member companies and their personnel, and the equipment offered, as well as the limits of work in which each firm specializes.

Book Reviews

VITAMINE UND HORMONE, volume 1, *H. Bredereck and R. Mittag.* Advance Scientific Publishers, Inc., New York 7, N. Y., 138 pages, spiral bound, leatherette cover, 1938, republished 1944. Price $4.00.

Special printing of a series of three volumes on the manufacture and related phases of vitamins and hormones. This volume is divided into two parts, the first dealing with the known vitamins, and the second part discussing hormones.

The series, of course, is not up to date, having been written and originally published in 1938. Much recent knowledge is therefore missing. By the same token, many data given in this series is often not included in other works. There are included 427 references, which form a valuable guide for the researcher.

CHEMICAL DICTIONARY, *Hackh-Grant*, Third Edition. Revised and edited by J. Grant, 217 illustrations, 925 pages, 6½ x 9½ inches. Blakiston Co., Philadelphia 5, Pa., 1944, price $12.00.

While smaller in weight and size than the second edition, this war-time revision actually contains more information than the earlier edition.

The object of a dictionary is to provide concise definitions based on latest findings and current acceptations. In chemistry and related technical fields this will vary from period to period, depending on the progress of scientific research. This chemical dictionary, might be better called a technical dictionary because it describes chemical compounds and elements, drugs, minerals, vegetables, instruments, chemical equipment, reactions, processes and methods, theories, laws and rules of chemistry, to mention some of the 57,000 terms presented. These terms cover all the related subjects such as physics, mineralogy, pharmacy, agriculture, biology, medicine, and engineering.

Every technical library needs a chemical dictionary. This is a darn good one. You will find it most useful in your work.

HOW TO SELECT FOREMEN AND SUPERVISORS. *R. C. Oberdahn.* 53 pages. Not illustrated. National Foremen's Institute, Deep River, Conn. Price $2.00.

Written for management, personnel and industrial relations managers, to serve as a guide in formulating a selection program for foremen.

GLYCERYL MONOSTEARATE

Self-Emulsifying (Cerasynt SE) **and** **Non-Emulsifying (Cerasynt S)**

GLYCERYL MONOSTEARATE needs no introduction to the cosmetic technician: he knows it as an important and invaluable emulsifier. He knows, too, that, in order to function dependably, Glyceryl Monostearate must run uniform, shipment after shipment: upon that uniformity depends the unvarying stability of his emulsions.

Glyceryl Monostearate Van Dyk is made on a large-scale basis by chemists who are experts in its manufacture and familiar with its applications. Precise and constant control assures its undeviating uniformity. Every batch maintains the high standard that we have set for the product; there is never any let-down in quality.

We will gladly send samples of Glyceryl Monostearate upon request. Please specify the type desired: self-emulsifying (Cerasynt SE) or non-emulsifying (Cerasynt S).

VAN DYK & COMPANY
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AMONG OUR FRIENDS

▸ Arthur M. Kelly has been appointed to the position of assistant to the president of Ann Haviland, New York, N. Y., manufacturer of perfumes and bath preparations. Mr. Kelly was previously associated with Houbigant, where he was in charge of sales promotion. He held this position for many years. Altogether, he has been active in this field for about fifteen years.

Arthur M. Kelly

▸ Harriett Groves has been appointed director of the Cosmetic Wholesale Division of Hattie Carnegie, Inc., New York, N. Y. Miss Groves has managed the production and sales of the Carnegie Wholesale Perfume Division for the past year.

▸ Lt. Col. John E. Devine of the Chemical Warfare Service has recently returned from the European theatre of war, and has been placed on inactive reserve status. Mr. Devine has returned to the Standard Alcohol Co., where he will now assume the position of Sales Manager for the Midwestern territory. He will make his headquarters at 75 East Wacker Drive, Chicago 1, Ill.

▸ George W. Springer has been appointed a sales representative of the Los Angeles branch of Shulton, Inc., New York, N. Y. Mr. Springer will cover the state of Colorado and part of Nebraska, South Dakota and Wyoming.

▸ Otto Baptist, export sales manager of Albert Verley & Co., Chicago, Ill., has left on a business trip to Mexico City for the purpose of working with the Albert Verley distributor, Alberto Farres, Mexico, D. F. After leaving Mexico City, Mr. Baptist is planning a trip to Cuba. Several months ago he returned from an extensive trip to the South American countries, where he visited Maximo A. Kuderli, Buenos Aires, Argentina; Dr. Blem & Cia., Ltd., Rio de Janeiro, Brazil; and Moller & Rothe Ltd., Bogota, Republic de Colombia; distributors of the company's aromatic products in the respective countries.

▸ Capt. Paul Carey, USMCR, has been welcomed back by his friends and associates after sixteen months in the South Pacific. He resumes his former duties as sales manager of Tussy Cosmetiques, Division of Lehn & Fink, New York, N. Y. Capt. Carey left Tussy to join the Marine Corps in November, 1942, and is now assigned to inactive duty. During his tour in the South Pacific he was attached to the Forward Echelon of the First Marine Aircraft Wing of the Fleet Marine Force, and saw action during the Bougainville landing and again in the landing on Green Island.

▸ Edward Davis, who has had long experience in the vanilla bean business dating back to 1918, is calling on the trade in the Middle West for Davis & Davis, Inc., Chicago, the concern which has just been appointed as the representatives of M. Cortizas & Co. in the middle western territory.

▸ Dr. O. H. Sobell, technical director of the J. R. Watkins Co., Winona, Minn., has been appointed a member of the Scientific Advisory Committee of the Toilet Goods Assn.

▸ Daniel H. Sterling who was recently appointed assistant sales manager of Richard Hudnut, Inc., New York, N. Y., was associated with the Elizabeth Arden Sales Corp. for 15 years.

▸ Herman L. Brooks, president of Coty's, Inc., New York, N. Y., has accepted the chairmanship of the Cosmetics Division of the Committee for the Legal Aid Society 1945 Appeal. The aim of the Appeal is to raise $160,000 to enable the Society to continue its help in solving legal problems for members of the Armed Forces and their dependents, as well as to carry on its usual assistance to civilians who cannot afford to pay lawyers' fees.

▸ William E. Malone, Jr., who was recently honorably discharged from the U. S. Army, has returned to American Home Products Corp., Jersey City, N. J., in a new position. He will be advertising and sales promotion manager of Affiliated Products, Inc., the company's cosmetic unit.

▸ Dr. Harry J. Prebluda has been designated manager of special products sales by U. S. Industrial Chemicals, Inc., New York, N. Y. Robert K. Rigger, formerly with U.S.I.'s Technical Development Laboratory, will be his assistant.

▸ Joseph D. Bohan has been elected a vice-president of Sterling Drug, Inc., New York, N. Y., in charge of Centaur Co. Division. He was formerly a divisional vice-president.

▸ Thomas G. C. Hendy, general manager of Evans Chemetics, Ltd., London, England, has returned home after spending a month with the parent organization, Evans Chemetics, Inc., in New York, N. Y. Mr. Hendy's trip was made primarily to carry on liaison work in connection with the post-war development of European plants by Evans Chemetics and its associated companies. While in the United States Mr. Hendy made arrangements for the manufacture of private brand cosmetics in England for American companies after the conclusion of the war.

Thomas G. C. Hendy

News and events

Standard Synthetics Reorganizes for Expansion

Standard Synthetics Co., New York, N. Y., has gone through a reorganization. John L. Hindle, who was founder of the parent firm in London in 1923, has been elected president, succeeding Edward Remus. J. O. Lane has been made vice-president.

John L. Hindle

The company with offices in New York, San Francisco, Chicago and Kansas City, Mo., plans to reopen its Boston office soon.

Later, plans will be put into effect for a more complete coverage.

Mr. Hindle was born in Leeds, England, and is a graduate of the University of Leeds. He spent three years in India before founding Standard Synthetics.

He is a director of the British Schools and University Club of New York, vice-president of the Doctor Furst Memory Club, and a member of the St. George's Society and the English-Speaking Union.

T.G.A. Convention to be Held by Mail

Due to the current restrictions on travel, the TGA is unable to hold its convention this year for the election of officers. It will overcome this obstacle by holding elections by mail. Ballots will be sent to those entitled to a vote not later than May 1, and returns must be in not later than May 15. Between May 15 and June 1, three tellers, two of which will represent the regular members and one the associate members, will receive the ballots still sealed in their envelopes. Results will be reported not later than June 1 to the executive board and to members of the association.

The president, Mr. Brooks, will appoint a nominating committee by March 15 to bring forward names for the vacancies to be filled. Ballots will also contain blank spaces for those who wish to "write in" a choice. Each member company is to have one vote.

The election will cover officers of the association, six directors who are regular members, and two directors who are associate members.

The usual reports; an address by the president, Mr. Brooks; a scientific and a legal report by Mr. Goulden and Mr. Mock; and a report from Mr. Mayham, executive vice-president, and will go out to members about the middle of May.

John Powell & Co. Enlarges Quarters

John Powell & Co. has moved its executive office to larger quarters at One Park Ave., New York, N. Y. Laboratories and export and technical sales departments will remain at 114 East 32 St. This move enables the Powell organization to enlarge its laboratory facilities. Executive offices had been maintained at the old address for the past eighteen years.

Texas Company Merchandises Vernet Line of French Perfumes in U. S.

The Vernet line of French perfumes will be marketed in the United States by Vernet of America, Edinburg, Texas, which was recently incorporated in Texas for the purpose. The perfume is to be offered in two-dram, half-ounce and one-ounce sizes. Leonard Glover, Wilmington, Del., has been appointed eastern sales representative. Ward Timlin is managing director of the newly organized company.

Para Laboratories Enlarge Office Space

Para Laboratories, New York, N. Y., has enlarged its office by an expansion in space at 40 West 27 Street. The company manufactures Queen Helene Cosmetics.

A. H. Moeller and A. G. Nickstadt Organize Essential Oil Co.

Alfred H. Moeller, who has been engaged in the essential oil and aromatic chemical industry for the last 18 years, 14 of which were with E. I. duPont de Nemours & Co. and A. G. Nickstadt, founder of Noville Products Co., Inc., have organized the Noville Essential Oil Co. with offices at 40 Stone St., New York, N. Y. The Noville Products Co., Inc., of which Mr. Nickstadt is president, will be affiliated with the new partnership. It has been active in foreign markets and it is that part of the business which will be developed under Mr. Moeller's personal direction.

Sperti Inc.
New York Office

Sperti, Inc., has opened a New York office at 714 Fifth Avenue. Company headquarters, laboratories and manufacturing plants are located in Cincinnati, Ohio. George Stevens has been named to direct the new office. The Sperti, Inc., line includes drugs, cosmetics, electronics, appliances, yeast and ceramics.

Ethyl Ether
Allocation

The allocation of ethyl ether was begun March 1, under M-300, Schedule 91. The small order exemption is 1,240 pounds.

Bristol-Myers
Reports Profits

The tentative consolidated statement of Bristol-Myers Co., New York, N. Y., indicates net earnings of $550,599 for the three months ending Dec. 31, 1944.

For the twelve month period net earnings amounted to $2,439,546, which is equivalent to $3.66 per share. These earnings are after all charges and reserves, and a provision of $5,952,063 for income and excess profits taxes, and renegotiation of all contracts.

TGA Issues
Committee Reports

The Toilet Goods Assn. has mailed its members a thirty-two page booklet containing reports of special committees. The reports, on raw materials, packaging, labor relations, foreign trade and disposal of surplus government toilet goods, are as complete as it is possible to make them.

Sterling Drug Leases
Building

Sterling Drug, Inc., has leased the 43-story Continental Building, 1450 Broadway, New York, N. Y., for a term of ten years, subject to existing leases.

The building will house offices of the company, presently located at 170 Varick St., as well as seven divisions and subsidiaries which are located in other parts of New York.

Some divisions of the company will occupy the new quarters immediately.

William Warner & Co.
in Reorganization

William R. Warner & Co., New York, N. Y., has announced new marketing plans whereby Standard Laboratories, Inc., is to market the numerous proprietary drug and toiletries acquired by the parent concern over a period of years. The new organization, which is to start functioning about July 2, is under the direction of Erwin Fauser. Mr. Fauser was formerly president and general manager of Frederick Stearns & Co.

This is the latest step in a series of moves designed to create more efficient distribution. It is anticipated that further changes will be announced by the company in the near future.

Monsanto Chemical Co.
Reports Earnings

The Monsanto Chemical Co., St. Louis, Mo., reported net sales in 1944 totaling $86,996,391, while net earnings amounted to $5,077,303, after taxes and deduction of minority interests. Net earnings amounted to $3.30 a common share.

Cacao Definitions and Standards Postponed

The War Food Administration has postponed establishing definitions and standards on cacao products until October 1, 1945.

Fibre Shipping Containers Cut

The War Production Board has ordered a 5 per cent cut in fibre shipping containers for non-military use through an amendment to Limitation Order L-317.

Quarterly use of these containers is limited to 95 per cent of the total, by weight or area, whichever is smaller, that the packer used in the corresponding period of 1944.

Coty Again Sponsors Fashion Design Award

The third annual American Fashion Critics Award luncheon was held in the Waldorf-Astoria Hotel, in New York, on February 13th. This affair is sponsored by Coty, Inc., New York, N. Y.

The first prize was awarded to Adrian, in the form of a bronze trophy, and $1,000 in war bonds. The second award went to Tina Leser for sports and play clothes, and the third to Emily Wilkens for developing teen-age fashions.

Grover A. Whalen, chairman of the board of Coty, presided, and Mayor F. H. LaGuardia was a guest speaker and made the awards. Kay Sullivan, fashion editor of *Town and Country*, headed the jury panel and introduced the winners. Fourteen hundred members of the fashion industry and press were present.

Hercules Powder Shows Growth

The 1944 annual report of the Hercules Powder Co., Wilmington, Del., to its stockholders shows an increase in employees for the year from 29,300 to 40,300. Over 35 per cent of the employees were women, as compared with 24 per cent for the preceding year.

Net earnings were reported as $4,823,855, a decrease from the $5,704,511 of the previous year. The decrease was attributed to shifts in war production, higher rates of federal income taxes, and higher costs.

Revlon Aids Army Nurse Corps

Revlon Products Corp., New York, N. Y., has been of aid to the Army Nurse Corps through an extensive advertising program wherein they offered to furnish a regulation overcoat from Saks Fifth Avenue to graduate registered nurses who joined the Corps between February 2nd and 15th.

The offer was confined to the Greater New York area. The program is reported to have been extremely successful.

Suspension of Restrictions on Vegetable Oil Deliveries

The War Food Administration has amended WFO Order No. 29, continuing through June 30, 1945, the suspension of restrictions on delivery of crude cottonseed, peanut, soybean and corn oils to refiners for refining purposes. The suspension began October 1, 1943.

Authorizations for delivery of the four crude oils to all users (except refiners) will continue to be obtained from WFA, and there are no changes requiring authorization to use them.

ADVERTISEMENT—*This entire page is a paid advertisement.* *Prepared Monthly by U. S. Industrial Chemicals, Inc.*

U.S.I. CHEMICAL NEWS

March ★ A Monthly Series for Chemists and Executives of the Solvents and Chemical Consuming Industries ★ 1945

Alcohol-Water Injection Proves Key to Huge Power Increase in Gasoline Engines

Official U. S. Navy Photo

A Helldiver earns its name! On many combat planes, alcohol-water injection provides priceless minutes of super speed.

Present Large-Scale Use on War Planes Seen Extending to Cars, Buses and Trucks

During 1944, the curtain of censorship was lifted just far enough to give motor-minded America an enticing preview of a wartime development that will go far to step up the performance and operating economy of postwar passenger cars and commercial vehicles. The development was the injection of a mixture of alcohol and water into the gas-air stream of the engine.

Extra Horsepower

The first story broke in May of last year. Dramatically it told how a famous Navy fighter pilot owed his life to the new development. A sudden burst of extra speed, released at the flick of a switch, had enabled him to streak out of range of three pursuing Zeros. Later stories revealed how alcohol-water injection was supplying extra power for take-offs and steep climbs.

The limiting factor, of course, is the amount of the alcohol-water mixture that is carried on a plane. At present, only enough is carried to give the plane a few minutes flying at the higher speed. But those are the critical minutes that can mean the difference between getting the jump on Jerry—and disaster.

The Theory

Every motorist has experienced the "lift" a gasoline engine gets on a damp day or after dark when humidity is high. The explanation, as automotive engineers know, is to be found mainly in the internal cooling action of the water. This cooling action tends to smooth out the progress of the flame front during combustion, applying more uniform pressure on the piston head throughout the stroke. Self-ignition of the compressed hot gas is prevented so that detonation does not occur.

(*Continued on next page*)

Non-Permit Alcohol Developed by U.S.I. for Aircraft Use

Vitol Special Widely Used for Test Purposes and Deliveries

One of the problems facing the aircraft industry right at the outset of the alcohol-water injection program was to find a suitable alcohol for test, experimental, and delivery purposes. The Armed Forces themselves, of course, could use any alcohol they chose without securing a permit. To private aircraft companies, however, any specially denatured alcohol would have entailed securing alcohol permits and the inescapable red tape and inconvenience associated with the use of specially denatured alcohol.

The aircraft industry needed a proprietary product that met Army and Navy specifications on the one hand, and was approved by the Treasury Department for use without permit on the other.

Vitol and Vitol Special

As a result of its early work on alcohol-water injection in conjunction with the Vita-Meter Corporation, U.S.I. had developed a proprietary formula which solved the immediate problem. The formula had been approved by the Alcohol Tax Unit of the Treasury for use without permit and the product was ideally suited for use in the operation of aircraft engines. Early last year, "Vitol" made its entry into the aviation field and was used extensively in testing combat aircraft.

The Army and Navy specifications, however, called for a different denatured alcohol

(*Continued on next page*)

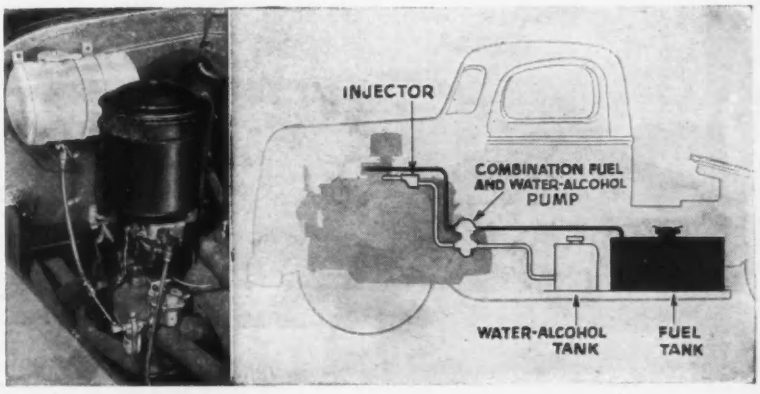
Lube Oil Additives Made by New Process

For years, high-pressure lubricants such as those used as cutting oils and for heavy-duty truck transmissions, have been prepared by adding small amounts of sulfurized oils to regular lubricants.

A recently granted patent covers an improved method of preparing such sulfurized mono-esters of fatty acids for use as lubricant improvers. A feature of the new process is that glycerine is reclaimed.

Fatty glycerides, prepared by mixing lard oil and cottonseed oil, were heated to approximately 330 deg. F., and a small amount of sulfur added. The sulfurized glycerides thus obtained were then reacted with a mixture of butanol and sulfuric acid. When the reaction was completed, the mixture stratified into an ester layer above and a glycerine-acid layer below. The ester layer was neutralized with lime. After further refining with activated clay, the treated oil was filter-pressed out.

The glycerine-acid layer was further refined to recover the glycerine.



(Below left) Typical passenger car installation. (Right) Schematic diagram of alcohol-water injector installation on truck. Although a small additional fuel tank is required, the increase in power and engine life far outweigh the disadvantage.

March ★ **U.S.I. CHEMICAL NEWS** ★ 1945

Alcohol-Water Injection

(Continued from preceding page)

Water has a high latent heat of vaporization (970 Btu per lb) so that if internal cooling were the only factor, there would be no point in using alcohol (367 Btu per lb). However, extensive tests have shown that alcohol alone and alcohol-water mixtures give better results than water alone; and water will freeze at low temperatures. When alcohol is used, peak pressure is delayed until the piston is further down its stroke and a more efficient cycle is obtained. Important, too, less engine roughness is encountered at high-power output; life of bearings and other engine parts is prolonged.

Postwar Possibilities

A vast amount of research has been done on alcohol-water injection into the gas-air stream of aircraft engines which, while details cannot now be revealed, points to its increasing use in this field. Its wide use on supercharged aircraft engines already has given remarkable results.

In January of this year, three engineers of Thompson Products, Inc. delivered a paper before the S.A.E. describing their extensive tests on alcohol, alcohol-water and water injection in truck and passenger car engines. Their conclusions, while pointing out the need for greater research, are highly significant. They may be summarized as follows:—

1. The control of pressure rise and shock with alcohol-water injection may facilitate the design of higher-compression engines of minimum weight.

2. That it will be particularly effective if supercharging is used on ground vehicles. Here, it would enable the engine to consume more air at the same engine speed.

3. That it may have a great field of use in light aircraft, designed to operate on ground-vehicle fuels.

4. That it will tend to maintain cleaner engines with softer, more easily removed carbon deposits.

5. That best gains through its use are realized when fuel about 12 octane numbers below engine requirements is used.

6. That it will effect economics, by permitting the use of lower-grade fuel, which will extend its use to many operations.

Acetone Aids Recovery of Biotin from Waste

Biotin, an important part of the B-complex vitamin, can be recovered from waste fermentation liquors, according to claims made in a newly granted patent assigned to a leading laboratory.

Mother liquors from fumaric acid fermentation processes are treated with sufficient activated charcoal to absorb the biotin. Biotin is then extracted from the charcoal. Among the extracting agents suggested is an aqueous solution of 60 per cent acetone and 2½ per cent ammonia.

Non-Permit Alcohol

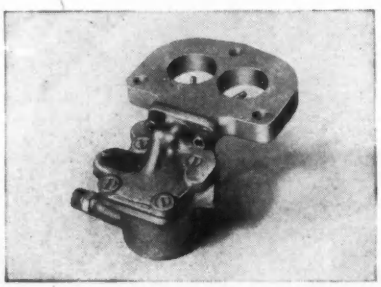
(Continued from preceding page)

—S.D. No. 3-A. To help aircraft builders avoid the necessity for securing a permit to use S.D. No. 3-A, U.S.I. altered its original formula and produced Vitol Special.

Vitol Special is essentially the same as the product called for by Army and Navy specifications and performs equally well. But it has a strong, non-alcoholic odor added which warns against its misuse. Being a proprietary product, it requires no permit and the markings on the drums show no reference to alcohol.

Penicillin vs. Heart Disease

Sub-acute bacterial endocarditis, a heart disease from which recovery was rare, is responding to penicillin, according to reports from two New York hospitals. The "cure" is effective only where the organism is a streptococcus sensitive to the drug.



Present type alcohol-water injector mounted on Flange, set between carburetor and manifold.

TECHNICAL DEVELOPMENTS

Further information on these items may be obtained by writing to U.S.I.

Light-fast acetate dyes, including reds, greens, blues, oranges, browns, yellows and violets, are offered for use on both cellulose acetate rayon and nylon. Color fastness varies with the depth of the color. **(No. 911)**

USI

First-aid burn treatment is offered in a new ointment which is designed to stop pain, exclude oxygen, prevent infection and stimulate healing. **(No. 912)**

USI

A new anti-stick agent is claimed to facilitate removal of molded plastics from the mold. The liquid, packaged in pint bottles, is said to saturate the mold, making it free ejecting for a large number of parts before another application is needed. **(No. 913)**

USI

Freeze-and-thaw resistant concrete is claimed to result from the use of a new-type portland cement. An added air-entraining material is said to give this new quality, plus cohesion and uniformity. **(No. 914)**

USI

A substitute for camphor, in nitrocellulose, is one of the uses suggested for a new chemical described as having the properties of both a high boiling solvent and a volatile plasticizer. It remains fluid down to —70 deg. C. **(No. 915)**

USI

To overcome odors, no matter how noxious, a chlorophyll air freshener is offered for industrial and commercial application. Designed to be used in connection with air conditioning or ventilating systems, it may also be used in non-conditioned spaces. **(No. 916)**

USI

A stable organic peroxide is claimed by its manufacturer to be insensitive to shock, to form clear, bubble-free films, and to be useful as a catalyst in bulk polymerization. It is soluble in all common organic solvents. **(No. 917)**

USI

New flame-resistant gasketing is offered in 1/8 in. and 1/16 in. thicknesses, with the added claim that it is suited for joint seals in ventilating systems and water, fusel-oil and diesel-oil systems. Other suggested uses include gasketing for airlock and refrigerator doors. Pressures up to 25 p.s.i. can be maintained. **(No. 918)**

USI

A fluorescent plastic dye, in solution form, is stated to impart fluorescence to any type of plastic. Suggested uses include decoration, dials, medical equipment, etc. **(No. 919)**

USI

Plywood panels 50 feet long, and up to 8 feet in width and 1¼ inches in thickness, are on the market. Laminations are bonded with phenolic-resin adhesives. **(No. 920)**

Collapsible Tubes Now Under Import Control

Collapsible tubes, filled or empty, manufactured in whole or in part of lead or alloy were placed under import control by order M-63 of the War Production Board early in February.

California Toiletries Show Projected

Perfumes, soaps and cosmetics, produced or sold in California, will be featured to a considerable extent at the California Toiletries Show to be held at a future date in Los Angeles under sponsorship of that city's Chamber of Commerce domestic trade department, according to announcement recently made.

To develop national markets for California manufacturers, the Chamber plans to stage this show and four other trade exhibits, patterned along lines of the recent successful semi-annual California Gift and Art Show.

Dates for the five projected trade shows will be announced when government restrictions on meetings are lifted. The chamber will issue invitations to buyers throughout the U.S.

The Toiletries Show Committee has George H. Voelker, Harriet Hubbard Ayer, Inc., as chairman. Others are Harold H. Boulware, of Frances Denney; Leon V. Lebedeff, Parfums Weil Paris Co.; Carlyle C. Prindle, Bourjois Sales Corp. of California; Henry Rosen, Helena Rubinstein, Inc.; R. Z. Stone, Roger and Gallet; N. W. Wilson, Kathleen Mary Quinlan; Howard P. Gilbert, Primrose House; Blaine Morgan, Morgan and Sampson; L. W. Fremy, Northam Warren Corp.; J. F. Verdi, Herb-Verdi Co., and Paul R. Meincke, Elizabeth Arden.

Procter & Gamble Acquires Spic and Span Products

The Procter & Gamble Co. of Cincinnati, Ohio, has acquired the patents, trademarks, and good will of Spic and Span Products of Saginaw, Mich. The firm manufactures a patented cleaner for painted walls and surfaces, sold through retail stores under the trade name of "Spic and Span." Distribution will be through the district sales offices of The Procter & Gamble Distributing Co.

McKesson & Robbins Reports Profits

Net sales of McKesson & Robbins, Bridgeport, Conn., for the six months ending Dec. 31, 1944, the first half of the company's fiscal year, were $151,636,011, an increase of 13 per cent over the corresponding period for 1943. The increase in sales was largely due to an increase in Federal liquor taxes.

Net profit was $2,258,892 after all charges, including provision for Federal taxes.

Parfums de Grasse Continuing Under Management of Miss E. Henno

Since the death of Emile Henno late in December, 1944, his daughter, Miss Elliane Henno, has been operating Parfums de Grasse, 360 Third Ave., New York, N. Y.

Nat'l Wholesale Druggists Cancel Meeting

Because of the transportation situation the National Wholesale Druggists' Assn. will not hold its usual Spring meeting.

Paul Dreifuss Co. in New Office

The Paul Dreifuss Co. announces the removal of its offices and show room to the Squibb Building, 745 Fifth Ave., New York 22, N. Y.

Henlan Inc., New to Toilet Goods Field

A new company has been incorporated under the name of Henlan for the manufacture of chemical compounds used in the drug, pharmaceutical and cosmetic trades. The new firm's address is 160 Cortlandt St., Belleville, N. J. Officers are: A. Alan Rattiner, president, and Henry E. Rollat, vice-president.

Annual Meeting of ASEC Held in New York City

The annual meeting of the American Society of European Chemists and Pharmacists was held on January 25th, at the auditorium of the society in New York, N. Y.

The Society has continued to grow since it was established five years ago.

In 1944, the Association continued to hold its monthly scientific lectures. The "Bulletin," published monthly, brought the contents of these lectures to the knowledge of all the members and friends of the ASEC, inside the U. S., England and Latin America.

New Honorary Members are: Prof. Albert Einstein, Princeton University; Prof. Victor Hess, Fordham University; and Prof. Otto Meyerhof, University of Pennsylvania.

As a result of elections, Dr. Henry Goldschmiedt was re-elected president. The Officers and Members of the Board of Directors were re-elected.

Plant Sanitation Stressed

Food and Drug Administration inspectors have received instructions from that agency to pay particular attention to the sanitary conditions of the plants and warehouses engaged in the handling of spices, foods, and other commodities which fall under the control of the food, drugs and cosmetics act.

Associated Soap and Glycerine Producers Award

American Soap and Glycerine Producers, Inc., has won two awards in this year's competition for the Wartime Advertising Awards. This is an annual event in which 100 outstanding advertisements are selected by *Advertising & Selling*. Both ads were prepared by Kenyon & Eckhardt, Inc.

Standard Synthetics Changes Western Coverage

Consistent with the plans for expansion of Standard Synthetics, Inc., New York, N. Y., the Indiana and Iowa trading areas are now covered from their branch office at 219 East North Water Street, Chicago, Ill., under the management of Edward Sinclair.

Mr. Sinclair, who has been associated with the Food and Confectionery industries for many years, is well known, and he and his Sales Manager, Ralph Crow, visit all major cities in Indiana and Iowa, including Des Moines, Indianapolis, Fort Wayne, Cedar Rapids and Burlington.

Anti-trust Action Against Glass Companies

The Supreme Court has supported the Toledo district court in ruling against seven defendant companies and the Glass Container Association.

The companies affected are: Owens-Illinois, Hazel-Atlas (packers ware); Thatcher Mfg. Co. (milk bottles); Ball Brothers Co. (fruit jars); Hartford-Empire Co., Lynch Corp. (machinery); and Corning Glass Wks. (scientific and industrial).

The Court ordered the dissolution of the Glass Container Assn. and provided that the companies be restrained from joining or forming a new association for a period of five years.

Knox Glass Associates, Anchor-Hocking, Armstrong Cork Co., Brockway Glass Co., Fairmount Glass Wks. Maryland Glass Corp., Swindell Brothers, Carr-Lowery Glass Co., and others, are not affected by the decision, and are free to merge and buy their assets.

There seems to be a feeling that the industry may be affected adversely in that cooperative promotion of glass containers may be halted. There was, for example, a promotion scheduled for an expenditure of $1,500,000 for one trip beer bottles after the war. Bottle specifications are also threatened. If universally accepted specifications are not maintained manufacturers will have difficulty in changing from one source to another.

It is presumed that the district judge will now call in attorneys from both sides for their interpretation of the Supreme Court decision, toward the end of issuing a new decree.

Remus Appoints West Coast Representative

O. D. Boyer Co. has been appointed West Coast representative for Edward Remus & Co., Inc., New York, N. Y. The Boyer organization, established over 25 years ago, is at 1340 E. Sixth St., Los Angeles, Calif.

Restrictions on Rosin

Soap manufacturers are restricted on the use of rosin to 25 per cent of the amount used during the corresponding quarter in 1944 through WPB Order M-387.

Lucca Olive Oil Co. Purchased by Trafton

The former Lucca Olive Oil Co. plant three miles north of Lindsay, Calif., has been purchased by Herbert Trafton from its New York owners, Schroeder Brothers. The plant had not previously been operated this season.

Frederick Stearns & Co. Expands Laboratories

A plant renovation program, including extensive expansion of the research laboratories, is currently under way in Detroit, Mich., at the Frederick Stearns & Co., Division, Sterling Drug, Inc. New chemical, biochemical, physiochemical, bacteriological and pharmacological laboratories are being added.

Merck & Co. Receives Army-Navy Award

The Army-Navy Production Award has been received for the fourth time by the employees of all three plants of Merck & Co., Inc., located at Rahway, N. J., Philadelphia, Pa., and Elkton, Va.

Obituary

Keith Scott-Watson

Keith Scott-Watson, formerly assistant editor of *Soap, Perfumery & Cosmetics*, London, England, is presumed to have been killed in Greece. He and his Spanish wife, Nevis, were last heard of in Athens prior to the German occupation.

Mr. Scott-Watson was the author of several books on Spain and was formerly on the staff of the United Press. In Rome and Danzig he was correspondent for the London *Daily Herald*.

Lieut. John C. Buslee

Lieut. John C. Buslee, son of John Buslee of Neumann, Buslee & Wolfe, Inc., Chicago, Ill., who was reported missing in action September 28 after a mission over Magdeburg, Germany, was killed in action according to a report just received by his parents from the War Department.

Lieut. Buslee, who was a student at the University of Wisconsin prior to enlisting in the Army Air Force in April 1943, often spent a part of his vacation calling on the trade with his father as he planned to join the sales force of the company after he completed his education. He got his commission in January 1944 and after training in New Mexico and Oklahoma on a Flying Fortress he and his crew flew to England late in June. For meritorious achievement and many successful missions he was awarded the Air Medal with Oak Leaf Clusters and the bombing group to which he was attached received the Presidential citation for effective bombing of important centers.

Lieut. Buslee is survived by his parents and a sister, Mrs. Janice B. Kielhofer.

Frank R. Huisking

Lieut. Frank R. Huisking, son of Charles L. Huisking, of Charles L. Huisking & Co., Inc., New York, N. Y., who was killed in action in Italy about a year ago, has been awarded posthumously the Army Flying Medal. The award was made to his mother at Mitchel Field, February 14.

Frederick Braum

Frederick Braum, who had been associated with Colgate-Palmolive-Peet Co., Jersey City, N. J., died recently. He was in the industrial engineering division.

Augustus Elbert

Augustus Elbert, founder of Elbert & Co., New York, N. Y., died on February 7, at the age of seventy-nine. He was a member of the New York Produce Exchange.

Louis Werk

Louis Werk died on February 18, at the age of 71. He had been secretary and treasurer of the M. Werk Co., Cincinnati, Ohio, an organization founded by his grandfather. He is survived by his wife.

Noble A. Smith

Noble A. Smith died recently at the age of 42. He was district manager of Procter & Gamble in Dallas, Texas, and had been with that company since 1927.

MARKET REPORT

DELAYS in shipments of certain basic items because of severe weather conditions that prevailed over a wide area; shortage of manpower; and developments at various primary sources of supply thus threatening replacements, all tended to make for exceedingly firm conditions in wholesale markets over the past month.

There were a few exceptions where prices turned easier including tragacanth gum and menthol, but most aromatic chemicals were scarce and the general trend in essential oils was definitely upward.

VANILLA BEANS EXPORT FROZEN

Of outstanding interest, was the freezing of all exports of vanilla beans in Madagascar. In the future all export shipments of beans in Madagascar will be subject to licenses and all licenses will be subject to approval by the Colonial Ministry of the Republic of France in Paris. Government officials of Madagascar were reported negotiating with the Colonial Ministry in Paris for early shipments out of Madagascar. Until such time as the Ministry arrives at a definite ruling, no shipments will be permitted to be exported from the primary center. Since various other commodities are exported to the United States from Madagascar including clove spice, oil vetivert, ylang-ylang and other floral oils, future developments are being awaited with considerable interest.

PRICE DEVELOPMENTS

Price movements in essential oils included advances in petitgrain, lemongrass, clove oil, Bourbon geranium oil, Ceylon citronella and Brazilian orange.

The strong position in lemongrass was reflected in an upward trend in ionones, while linalyl acetate prices were moved upward in keeping with the tighter supply position in bois de rose and petitgrain.

Little activity has been noted in mint oils on spot. WFA purchases over the past year have undoubtedly reduced available supplies in the country, and confectioners working on orders for the armed forces have likewise been credited with taking good quantities.

Some small lots of orange and lemon oils arrived here from Brazil over the past month, and it is understood that importers have encountered little difficulty in finding a ready outlet for these supplies in the face of the firm conditions that exist on spot.

Some offerings of bois de rose oil were reported here from the primary market. As far as could be learned, no business developed because of the inability to obtain export licenses at the source. Additional quantities of pine needle oil have been purchased from Russia. It is not known when these goods will arrive. Spot stocks meanwhile have been reduced to such an extent that suppliers have found it necessary to limit offerings to regular customers based on previous sales requirements.

GLYCERINE POSITION TIGHT

Certain glycerine refiners having a good volume of orders on their books are reported reaching out for additional quantities of crude, and as a result, all suitable grades appeared to be enjoying a ready outlet. A government inquiry was in the market for 1,540,000 pounds of dynamite glycerine for March-April shipment. The inquiry called for 400,000 pounds from the East coast and 600,000 pounds from the West coast for March, and about 540,000 pounds for April delivery out of the West coast. The goods will be for lend-lease requirements. Although some trade factors believe that there should be an ample supply of glycerine this year, there were dealer reports current to the effect that the article was in a rather tight position. With the final phase of the European war believed underway, sudden demands for substantial tonnages for use in liberated countries could easily bring about a decided change in the domestic picture.

CITRIC ACID SITUATION CRITICAL

As a reminder, a large producer, in a special notice to the trade, suggested consumers order citric acid before March 1, for shipment during April, May and June. The situation on citric acid continues critical, it was explained. By placing orders early, buyers will be promptly notified of the quantities to be made available to them over this period upon receipt of the producers allocations from WPB. Tartaric acid was strong. With seasonal influences at work, demand for both tartaric and citric is expected to grow more pressing. It is understood that saccharic acid was being made available to some consumers as a substitute for tartaric acid.

BRAZIL MENTHOL PRODUCTION UP

Despite reports of lower menthol prices from Brazil, some houses continued to be extremely firm in their ideas regarding spot prices. While it is generally known that this year's production in Brazil will be much greater than last year, the mint crop is very late, and it is not likely that menthol produced from the new crop will reach this market until late May or early June. Swift moving events in the European war may open up new outlets for menthol, it is warned. Thus new production while greater than last year would not prove sufficient to take care of the additional demands from other countries.

Developments in gums included a reduction in tragacanth prices and fractional gains in arabic. The reduction in ribbon tragacanth prices was attributed to a narrow demand and more liberal offerings.

With shipping prices on balsam copaiba remaining at above levels which importers are able to pay because of ceilings, the supply here is reported to be about exhausted, with quotations virtually nominal. Balsam tolu is likewise in a strong position.

PRICES IN THE NEW YORK MARKET

(Quotations on these pages are those made by local dealers, but are subject to revision without notice)

ESSENTIAL OILS

Almond Bit, per lb.	3.50@	4.00
F. P. A.	5.00@	5.50
Sweet True	1.50@	1.75
Apricot Kernel	.50	Nom'l
Amber, rectified	2.25	Nom'l
Angelica Root	125.00@	150.00
Anise, U. S. P.	4.00	Nom'l
Imitation	1.75@	2.10
Aspic (spike) Span.	3.75@	4.00
Avocado	1.05@	1.25
Bay	1.50@	1.75
Bergamot	8.50	Nom'l
Artificial	4.00@	9.25
Birch, sweet	2.75@	5.00
Birchtar, crude	2.25	Nom'l
Birchtar, rectified	4.25	Nom'l
Bois de Rose	5.50@	5.75
Cade, U. S. P.	.90@	1.20
Cajeput	2.35@	3.00
Calamus	22.50@	35.00
Camphor "white," dom.	.35	Nom'l
Cananga, native	12.50@	13.00
Rectified	15.00@	16.25
Caraway	18.00@	20.00
Cardamon	21.00@	25.00
Cassia, rectified, U. S. P.	12.00	Nom'l
Imitation	3.75@	
Cedar leaf	1.35@	1.60
U. S. P.	2.65@	3.34
Cedar wood	1.00@	1.10
Celery	18.00@	22.00
Chamomile	150.00	Nom'l
Cinnamon bark oil	32.50@	35.00
Citronella, Ceylon	1.10@	1.20
Java	3.25	Nom'l
Cloves, Zanzibar	1.80@	1.85
Coriander	30.00@	32.00
Imitation	12.00@	14.00
Croton	3.75@	4.25
Cumin	9.00@	11.00
Dillseed	8.00	Nom'l
Erigeron	2.25@	5.00
Eucalyptus	1.09@	1.18
Fennel, Sweet	4.00	Nom'l
Geranium, Rose, Algerian	15.00	Nom'l
Bourbon	12.00@	14.00
Turkish	5.00@	5.80
Ginger	20.00@	22.00
Guaiac (Wood)	4.00@	4.80
Hemlock	2.65@	3.34
Substitute	.55@	.60
Juniper Berries	12.50@	16.00
Juniper Wood, imitation	1.00@	1.25
Laurel	5.00	Nom'l
Lavandin	8.25	Nom'l
Lavender, French	12.00	Nom'l
Lemon, Calif.	3.25	Nom'l
Lemongrass	2.00@	2.25
Limes, distilled	7.00@	7.75
Expressed	13.50@	15.00
Linaloe	4.00@	4.15
Lovage	95.00	Nom'l
Marjoram	7.25@	7.50
Neroli, Bigarde P.	300.00@	375.00
Petale, extra	265.00@	300.00
Olibanum	5.00@	5.75
Opopanax	30.00@	38.00
Orange, bitter	4.00@	4.25
Brazilian	1.50@	1.65
Calif., exp.	2.00@	
Orris Root, abs. (oz.)	135.00@	
Artificial	36.00@	40.00
Pennyroyal, Amer.	4.10@	4.25
European	4.10	Nom'l
Peppermint, natural	7.50@	7.75
Redistilled	8.05@	
Petitgrain	1.85@	2.25
Pimiento	7.50@	8.00
Pinus Sylvestris	4.25@	5.00
Pumillonis	4.25@	4.75
Rose, Bulgaria (oz.)	30.00@	40.00
Synthetic, lb.	45.00@	55.00
Rosemary, Spanish	1.50@	1.65
Sage	4.00@	4.85
Sage, Clary	25.00@	30.00
Sandalwood, N. F.	7.00@	7.25
Sassafras, natural	2.00@	2.15
Artificial	.95@	1.25
Snake root	12.00	Nom'l
Spearmint	4.00	Nom'l
Thyme, red	3.20@	3.75
White	3.65@	5.00
Valarian	40.00	Nom'l
Vetivert, Java	50.00	Nom'l
Bourbon	30.00@	32.00
Wintergreen	4.85@	8.50
Wormseed	5.25	Nom'l
Ylang Ylang, Manila	38.00	Nom'l
Bourbon	13.00@	20.00

(Continued on page 97)

(Continued from page 95)

TERPENELESS OILS

Bergamot	25.00	Nom'l
Grapefruit	65.00@	
Lavender	28.00	Nom'l
Lemon	45.00	Nom'l
Lime, ex.	80.00@	100.00
Distilled	60.00@	67.00
Orange sweet	65.00@	112.00
Peppermint	13.35@	14.00
Petitgrain	3.50@	3.75
Spearmint	5.00@	6.00

DERIVATIVES AND CHEMICALS

Acetaldehyde 50%	1.90@	2.75
Acetaphenone	1.70@	1.80
Alcohol C 8	7.50	Nom'l
C 9	14.00	Nom'l
C 10	7.75@	12.00
C 11	11.50	Nom'l
C 12	7.20@	8.50
Aldehyde C 8	22.50@	28.00
C 9	32.00	Nom'l
C 10	22.00@	29.00
C 11	22.00	Nom'l
C 12	25.00@	30.00
C 14 (so called)	9.25@	9.75
C 16 (so called)	7.65@	8.25
Amyl Acetate	.50@	.75
Amyl Butyrate	.90@	1.10
Amyl Cinnamate	4.50@	5.80
Amyl Cinnamate Aldehyde	2.75@	5.00
Amyl Formate	1.00@	1.50
Amyl Phenyl Acetate	3.75@	4.00
Amyl Salicylate	.80@	1.00
Amyl Valerate	2.10@	2.75
Anethol	3.50	Nom'l
Anisic Aldehyde	3.35@	4.00
Benzophenone	1.15@	1.30
Benzyl Acetate	.75	Nom'l
Benzyl Alcohol	1.70@	1.85
Benzyl Benzoate	1.10	Nom'l
Benzyl Butyrate	2.15@	3.25
Benzyl Cinnamate	5.15	Nom'l
Benzyl Formate	2.50@	3.75
Benzyl-Iso-eugenol	10.25	Nom'l
Benzylidenacetone	2.25@	3.40
Borneol	1.80	Nom'l
Bornyl Acetate	2.00	Nom'l
Bromstyrol	6.25@	
Butyl Acetate	.18¼@	.18½
Cinnamic Acid	3.75@	4.50
Cinnamic Alcohol	3.85@	4.25
Cinnamic Aldehyde	2.65@	3.90
Cinnamyl Acetate	10.50@	12.00
Cinnamyl Butyrate	12.00@	14.00
Cinnamyl Formate	10.00@	13.00
Citral, C. P.	4.50@	7.00
Citronellol	6.50@	7.00
Citronellyl Acetate	8.60@	9.20
Coumarin	3.00@	3.50
Cuminic Aldehyde	8.00@	11.25
Diethylphthalate	.24	Nom'l
Dimethyl Anthranilate	4.55@	5.00
Ethyl Acetate	.25@	.35
Ethyl Anthranilate	5.50@	7.00
Ethyl Benzoate	.90@	1.15
Ethyl Butyrate	.75@	.90
Ethyl Cinnamate	3.50	Nom'l
Ethyl Formate	.70@	.95
Ethyl Propionate	.80	Nom'l
Ethyl Salicylate	.90@	1.00
Ethyl Vanillin	5.25@	6.00
Eucalyptol	2.85	Nom'l
Eugenol	3.30@	3.50
Geraniol, dom.	5.50@	6.00
Geranyl Acetate	4.00	Nom'l
Geranyl Butyrate	8.20@	8.50
Geranyl Formate	13.40	Nom'l
Heliotropin, dom.	6.50	Nom'l
Hydrotopic Aldehyde	15.00@	18.00
Hydroxycitronellal	8.50	Nom'l
Indol, C. P.	23.00@	26.50
Iso-borneol	1.10	Nom'l
Iso-butyl Acetate	1.25@	2.00
Iso-butyl Benzoate	1.50@	2.60
Iso-butyl Salicylate	2.70@	3.00
Iso-eugenol	4.00	Nom'l
Iso-safrol	3.00	Nom'l
Linalool	8.50@	9.10
Linalyl Acetate 90%	8.75@	9.00
Linalyl Anthranilate	15.00@	
Linalyl Benzoate	10.50@	
Linalyl Formate	9.25@	12.00
Menthol, Brazilian	13.00@	14.50
Methyl Acetophenone	1.80	Nom'l
Methyl Anthranilate	2.25@	2.40
Methyl Benzoate	.60@	1.00
Methyl Cellulose, f.o.b. shipping point	.60	Nom'l
Methyl Cinnamate	3.00	Nom'l
Methyl Eugenol	3.50@	6.75
Methyl Heptenone	3.50	Nom'l
Methyl Heptine Carbonate	45.00@	60.00
Methyl Iso-eugenol	5.85@	10.00
Methyl Octine Carbonate	24.00@	30.00
Methyl Paracresol	2.50	Nom'l
Methyl Phenylacetate	3.75@	4.00
Methyl Salicylate	.37@	.38
Musk Ambrette	4.25@	4.50
Ketone	4.35@	4.80
Xylene	1.65@	2.50
Neroline (ethyl ether)	2.00@	3.15
Paracresol Acetate	2.55@	3.00
Paracresol Methyl Ether	2.60@	2.85
Paracresol Phenyl-acetate	6.50@	8.50
Phenylacetaldehyde 50%	3.00	Nom'l
100%	5.00	Nom'l
Phenylacetic Acid	3.00@	3.75
Phenylethyl Acetate	2.50	Nom'l
Phenylethyl Alcohol	2.80@	3.00

(Continued on page 99)

(Continued from page 97)

Phenylethyl Anthranilate	16.00@	
Phenylethyl Butyrate	3.65@	4.00
Phenylethyl Propionate	3.45@	3.90
Phenyl Valerianate	16.00@	17.50
Phenylpropyl Acetate	10.00	Nom'l
Santalyl Acetate	20.00@	22.50
Scatol, C. P. (oz.)	5.35@	6.00
Styrolyl Acetate	2.50@	3.00
Vanillin (clove oil)	2.60	Nom'l
(guaiacol)	2.35	Nom'l
Lignin	2.35	Nom'l
Vetivert Acetate	25.00	Nom'l
Violet Ketone Alpha	18.00	Nom'l
Beta	15.00	Nom'l
Methyl	6.50	Nom'l
Yara Yara (methyl ester)	2.00@	3.10

BEANS

Tonka Beans, Surinam	.80@	.95
Angostura	2.25@	3.00
Vanilla Beans		
Mexican, whole	11.00@	
Mexican, cut	10.00@	
Bourbon	9.50@	10.50
Tahiti	4.00@	

SUNDRIES AND DRUGS

Acetone	.8½@	.09
Almond meal	.25@	.35
Ambergris, ounce	12.00@	16.00
Balsam, Copaiba	.75	Nom'l
Peru	.90@	1.25
Beeswax, bleached, pure		
U. S. P.	.58	Nom'l
Yellow, refined	.53½	Nom'l
Bismuth, subnitrate	1.20@	1.22
Borax, crystals, carlot ton	55.50@	58.00
Boric Acid, U. S. P., cwt.	6.95@	7.55
Calamine	.18@	.20
Calcium, phosphate	.08@	.08¾
Phosphate, tri-basic	.09@	.10
Camphor, domestic	.69@	.84
Castoreum	13.00@	17.00
Cetyl Alcohol	1.75	Nom'l
Pure	2.25	Nom'l
Chalk, precip.	.03½@	.06½
Cherry Laurel Water, jug, gal.	3.60@	4.00
Citric Acid	.21	Nom'l
Civet, ounce	18.00@	25.00
Clay, colloidal	.07@	.15
Cocoa, Butter, lump	.25½@	.27
Cyclohexanol (Hexalin)	.30@	.50
Fuller's Earth, ton	15.00@	33.00
Glycerin, C. P., drums	.15½@	.15¾
Gum Arabic, white	.42@	.45
Amber	.12¾@	.13
Powdered, U.S.P.	.18@	.21
Gum Benzoin, Siam	5.00	Nom'l
Sumatra	1.40	Nom'l
Gum Galbanum	1.80@	2.00
Gum Myrrh	.55	Nom'l
Henna, pwd.	.30@	.35
Kaolin	.05@	.07
Labdanum	3.25@	5.00
Lanolin, hydrous	.30@	.34
Anhydrous	.31@	.35
Magnesium, carbonate	.09@	.10¾
Stearate	.24@	.27
Musk, ounce	50.00	Nom'l
Olibanum, tears	.18@	.35
Siftings	.11½@	.13
Orange Flower Water, gal.	1.75@	2.25
Orris Root, African, pwd.	1.10@	1.15
Paraffin	.06¼@	.09
Peroxide	1.10@	1.75
Petrolatum, white	.06¼@	.08½
Quince Seed	1.65@	1.95
Rice Starch	.10	Nom'l
Rose Leaves, red	3.45@	4.00
Rose Water, gal.	6.50@	8.00
Rosin, M. per cwt.	7.15@	
Salicylic Acid	.35@	.40
Saponin	2.00@	2.50
Silicate, 40°, drums, works, 100 pounds	.80@	1.20
Soap, neutral, white	.20@	.25
Sodium Carb.		
58% light, 100 pounds	1.35@	2.35
Hydroxide, 76% solid, 100 pounds	2.60@	3.75
Spermaceti	.26@	.27
Stearate Zinc	.30@	.31
Styrax	1.40@	1.60
Tartaric Acid	.64	Nom'l
Tragacanth, No. 1	4.00@	4.35
Triethanolamine	.34½	Nom'l
Violet Flowers	1.75@	2.00
Zinc Oxide, U. S. P. bbls.	.10½	.10¾

OILS AND FATS

Castor No. 1, tanks	.13@	
Cocoanut, Manila Grade, c.i.f., tanks	.0835@	
Corn, crude, Midwest, mill, tanks	.12¾@	
Corn Oil, distilled, drums	.16¼@	.16½
Cotton, crude, Southeast, tanks	.12¾@	
Grease, white	.08⅞@	
Lard	.15 22½@	
Lard Oil, common, No. 1 bbls.	.14@	
Palm, Niger, drums	.0865	
Peanut, blchd., tanks	.1501@	
Red Oil, distilled, tanks	.12@	
Stearic Acid		
Triple Pressed	.18⅝@	.18⅞
Double Pressed	.15⅞@	.16⅞
Tallow, acidless, barrels	.14¼@	
Tallow, N. Y. C., extra	.08⅝@	
Whale oil, refined	.1232	Nom'l

PROFESSIONAL SERVICE

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The rates for advertisements in this section are as follows: Business Opportunities, $1.00 per line per insertion. Situations Wanted and Help Wanted, 50c per line per insertion. Please send check with copy. Address all communications to THE AMERICAN PERFUMER, 9 East 38th St., New York.

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WANTED: 1 Colloid Mill, 5 to 20 Gallons capacity (Stainless Steel), 1 Monel Metal Percolator, 60 Gallons capacity. 1 Horizontal Filter, capacity 60-400 G. P. H. (Sparkler Preferred). No Dealers. Write Box 2516, The American Perfumer and Essential Oil Review.

BRAZILIAN industrial firm, giving best references, desires to contact an American company to produce in Brazil, articles of great demand based on the American process by means of royalty or any other kind of remuneration to be agreed on. Write Box 2518, The American Perfumer and Essential Oil Review.

DISTILLED WATER STILL. Polar Still, 150 Gal. per Hour. Has 3—500 gal. copper Tanks, tin-lined. Oil-fired. Original cost $6500.00. Make offer. Dad's Root Beer Company, 2800 N. Talman, Chicago 18, Illinois.

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GRAND OPPORTUNITY awaits perfume salesperson with intimate clientele. Premier quality French perfumes. States Maine to Maryland. Write Box 2524, The American Perfumer and Essential Oil Review.

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WANTED—experienced man to sell to the Candy & Perfumery trade in Chicago and Detroit for a New York Essential Oil House. Write Box 2526, The American Perfumer and Essential Oil Review.

INDEX TO ADVERTISERS

Production Control and the Analysis of Cosmetics

by MAISON G. DENAVARRE, Ph.C., B.S.

Technical Editor of the American Perfumer & Essential Oil Review; Expert Consultant, Engineer Board, U. S. Army; Special Lecturer in Cosmetics, Wayne University, College of Pharmacy; Consulting Chemist

Thirteenth Installment

The twelfth installment was published in the preceding issue. Subsequent installments will appear in forthcoming issues.

ACKNOWLEDGMENTS

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CHAPTER IV

(*continued*)

Physical and Chemical Testing
Gravimetric and Volumetric Methods

C-185—GLYCOLLIC ACID, TEST FOR—EEGRIWE

(*Merck Index*)

Heat a little of the substance with a solution of 2.7-dihydroxynaphthalene in H_2SO_4. A violet-red color indicates glycollic acid.

C-186—GUANIDINE, REACTION FOR—SAKAGUCHI

(*Merck Index*)

Guanidine is converted into the carbonate and evaporated with 1:2 glycocoll and a little water. Glycocyamine is formed, which can be detected with a-naphthol and sodium hypochlorite.

C-187—GUM GHATTI

(*N.F.*)

Distinction from Acacia: An aqueous solution (1 in 100) of gum ghatti gives a precipitate with tannic acid T.S.

C-188—IDENTIFICATION OF GUMS, TENTATIVE

(*A.O.A.C.*)

Reagents: (a) Chlorzinciodide. To 100 ml of a solution of $ZnCl_2$, specific gravity 1.8, add a solution of 10 gms of KI and 0.15 gm of I in 10 ml of H_2O. Keep a few crystals of I in the solution.

(b) Ruthenium red. To a few ml of a 10 percent solution of Pb acetate add enough ruthenium red to produce a wine red color.

(c) Methylene blue, 0.1 percent solution in alcohol.

(d) Methylene blue, 0.1 percent solution in H_2O.

PREPARATION OF SAMPLES

Controls—Moisten 1 gm of the dry gum with alcohol, add 100 ml of H_2O with constant stirring, and bring to boil. To 5 or 10 ml of the resulting liquid or jelly, add 4 volumes of alcohol, mix, and centrifuge to bring the pre-

cipitate together as a compact mass. (Some gums, notably acacia and agar, may fail to be thrown down by this treatment. The addition of a few drops of a saturated salt solution should cause rapid flocculation and settling.)

Jellies or Lotions—Stir, and add H_2O if necessary to produce a fluid mass. Treat a portion of the sample with alcohol to precipitate the gum as directed under Controls. Remove fatty or oily material, if present, by washing the precipitated gum with ether, then redissolve in H_2O and re-precipitate.

DETERMINATION

With a clean towel squeeze a small lump of the alcohol precipitate against a slide to form a mat 4-8 mm in diameter on the slide. Note character of resulting mat as a possible index to the type of gum. Quince and Irish moss form thin and rather translucent films while agar, starch, and acacia are white and opaque. Cover mat with a large drop of the chlorzinciodide solution and observe carefully both with and without magnification. For direct examination place slide upon white surface. For microscopic examination use a magnification of about 90 diameters. If no characteristic color is produced within 1-2 minutes, proceed with a fresh mat to examine for the group (table 24). Continue in a similar manner through all the group tests or until the identity is established. Use a fresh mat for each individual test.

Table 24
Characteristics of test for gums
GROUP I. REAGENT CHLORZINCIODIDE

Gum	Original Alcohol PPt.	Group Reaction	Confirmatory Test	Remarks
Tragacanth	Stringy Bluish Translucent	Blue	Warm with 10% NaOH on steam bath Yellow	Certain gums, e.g., Irish moss, may yield dull yellow color with NaOH. Tragacanth bright yellow
Starch	White Compact	Blue Black	Iodine, 0.1 *N* Blue	Tragacanth may yield faint blue
Quince	Stringy Translucent	Blue	Above tests negative	Quince is distinguished from starch and tragacanth by negative reactions
Irish moss	Stringy	Brown (small blue particles)	Characteristic nodular structures with group reagent	Old preparations of this gum may fail to show characteristic structures

Table 25
GROUP II. REAGENT TINCTURE OF IODINE, U.S.P.
(Allow tincture to dry on mat, flush off with alcohol, and irrigate with H_2O)

Gum	Original Alcohol PPt.	Group Reaction	Confirmatory Test	Remarks
Agar	White opaque	Opaque blue black	Stains with ruthenium red	Does not dissolve or lose shape when covered with H_2O
Irish moss	Stringy	Brown or lilac	Characteristic blue stain with alcoholic methylene blue	These reactions yielded by old as well as fresh preparations

Table 26
GROUP III. REAGENT RUTHENIUM RED

Gum	Original Alcohol PPt.	Group Reaction	Confirmatory Test	Remarks
Karaya	Fine flocculent compact mass on centrifuging	Swells considerably. Strongly stained pink granular mass	Heat with conc. HCl. Pink	Aqueous methylene blue produces a characteristic blue stain

Table 27
GROUP IV. REAGENT CONCENTRATED H_2SO_4
(Warm cautiously on steam bath)

Gum	Original Alcohol PPt.	Group Reaction	Confirmatory Test	Remarks
Galagum	Stringy	Pink or red brown	No satisfactory test found	Alcohol precipitate from galagum resembles that from tragacanth.
Acacia		Greenish brown	Ppt. completely soluble in H_2O	Complete soln. of acacia distinguishes it from most other gums.

C-189—GUMS

Distinguishing Between Same and Pectin

(E. F. Bryant, J. Ind. & Eng. Chem. Anal. Ed. ***13****,103,1941)*

If the substance under examination is a powder containing no added materials, such as sugar or acid, it is made up to a 1 percent aqueous solution. Any admixture should first be extracted with 50 percent alcohol, or can be eliminated by dissolving the substance and then precipitating with an equal volume of alcohol. If the sample is a liquid preparation, the gum should be precipitated as above, so that a pure solution of known strength can be made.

Irish moss, agar, gum arabic, and karaya gum give no precipitate with 50 percent alcohol; gum tragacanth gives only a slight precipitation; but pectin, quince seed, and locust-bean gums give good precipitates.

The precipitate from Irish moss is stringy and opaque and easily differentiated, but those from quince seed and pectin are alike, being of a firm, gelatinous nature. The pectin precipitate is easily dispersed or in some cases actually dissolves on adding an excess of the thorium nitrate solution or dilute acetic acid; the quince seed precipitate with thorium nitrate is unaffected by this treatment. If the dilute acetic acid is first added to the gum solution, the quince seed will yield a firm gel and the pectin shows only a thickening or very slight gel.

Table 28

	Thorium nitrate		Neutral lead acetate	
Material used	10% solution	10% solution and 5N acetic acid	10% solution	10% solution and 5N acetic acid
Gum arabic	a	a	a	a
Locust-bean gum	a	a	Slight thickening	a
Gum tragacanth	a	a	a	a
Irish moss	Stringy, white precipitate	White granular ppt.	Cloudy	Cloudy
Karaya gum	a	a	a	a
Quince-seed gum	Firm opaque gel	Firm gel	Fairly firm gel	Very weak gel, a thickening
Pectin	Firm transparent gel	Very weak gel, a thickening	Firm transparent gel	Firm, brittle, clear gel
Agar (0.5 instead of 1%)	Slight haze	a	a	a
Methyl cellulose	a	a	a	a
Starch	a	a	a	a

a—No apparent reaction

A confirmation of the thorium nitrate test for pectin may be made with neutral lead acetate. In unacidified solutions pectin and quince seed yield gels, while if acetic acid is added to the solution before the lead acetate, pectin forms a firm, clear, brittle gel but quince-seed gum gives only a very weak gel or a viscous solution. This is just the reverse of the thorium nitrate test.

To 10 ml of the aqueous solution of the gum (1 in 100) add 1 ml of 10 percent thorium nitrate solution, stir, and allow to stand 2 minutes. If a gel results, the gum is either pectin or quince-seed gum. If no gel results it is not pectin.

To differentiate between the two gums: To 10 ml of the solution add 1 ml of 5 *N* acetic acid, then 1 ml of 10 percent thorium nitrate solution, stir, and allow to stand 2 minutes. If no firm gel results the gum is pectin; if a gel forms it is quince-seed gum.

To check the reaction, a 10 percent solution of neutral lead acetate is used and the same procedure is carried out as for thorium nitrate.

C-190—HALIDES, DETECTION OF

(G. W. Thiessen, K. M. Beck and A. E. Smith, J. Chem. Education **20,** *530, 1943)*

Mix 0.3-0.4 gm of moist Ag halide with 0.1-0.2 gm of MnO_2 in a test tube and add 2-3 ml of concentrated H_2SO_4. The escaping halogen can be identified by color, odor and action on moist litmus (bleached by Cl and Br, and turned gray by I). This test is recommended for beginners. (Thru C. A. **38,** 933, 1944.)

HALPHENS TEST

See Cottonseed Oil C-139

HANUS

See C-203

C-191—HEAVY METALS TEST

(U.S.P.)

The heavy metal test is designed to determine the content of those metallic impurities in official substances that are colored by hydrogen sulfide under the conditions of the test. In chemicals the proportion of any such impurity is expressed as the quantity of lead required to produce a color of equal depth in a standard comparison solution, this quantity being stated as the heavy metals limit as equivalent parts of lead per million parts of the substance (by weight).

Reagents: Diluted Acetic Acid—Dilute 60.0 cc. of glacial acetic acid with sufficient distilled water to make 1000 cc.

Hydrochloric Acid: All concentrations of hydrochloric acid used in the heavy metals test must be prepared from reagent hydrochloric acid and distilled water.

Ammonia T.S.—It contains not less than 9.5 percent and not more than 10.5 percent of NH_3. It is prepared by diluting 395 cc of stronger reagent ammonia water with sufficient distilled water to make 1000 cc.

The heavy metals limits of ammonia T.S. used in this test shall not exceed 2 parts per million, when determined as directed in the monographs for liquor ammoniae dilutus.

Hydrogen Sulfide T.S.—Saturated aqueous solution of hydrogen sulfide, made by passing H_2S into cold distilled water. Keep the solution in small, dark amber-colored bottles, filled nearly to the top. Do not use it unless it possesses a strong odor of H_2S, and unless it produces at once a copious precipitate of sulfur when added to an equal volume of ferric chloride T.S. Preserve in a cool, dark place.

Stock Solution of Lead Nitrate—Dissolve 0.1598 gm of lead nitrate in 100 cc of distilled water to which has been added 1 cc of nitric acid, then dilute to 1000 cc with distilled water. This solution must be prepared and stored in glass containers free from soluble lead salts.

Standard Lead Solution: Dilute 100 cc of the stock solution of lead nitrate, accurately measured, to 100 cc with distilled water. This solution must be freely prepared. Each cc of this standard lead solution contains the equivalent of 0.01 mg of lead. When 0.1 cc of standard lead solution is employed to prepare the standard to be compared with a solution of 1 gm of the substance being tested, the comparison solution thus prepared contains the equivalent of 1 part of lead per million parts of the substance tested.

Procedure for Testing Chemicals: Solution A—Introduce into a 50-cc Nessler tube 2 cc of diluted acetic acid, and exactly the quantity of standard lead solution containing the lead equivalent of the heavy metals limit specified for the substance to be tested, and made up to 25 cc with distilled water.

Solution B—This consists of 25 cc of the solution prepared for this test according to the specific directions in each monograph.

Transfer solutions A and B to similar 50-cc Nessler tubes, add 10 cc of hydrogen sulfide T.S. to each tube, mix, allow to stand for 10 minutes, then view downward over a white surface: the color of solution B is no darker than that of solution A.

Procedure for Testing Volatile Oils: Shake 10 cc of the oil with an equal volume of distilled water to which a drop of hydrochloric acid has been added, and pass hydrogen sulfide through the mixture until it is saturated: no darkening in color is produced in either the oil or the water.

HEXAMETHYL TETRAMINE

See Methenamine

HEXITOLS

See Polyalcohols

C-192—HYDRASTINE

When the solution is made acid with sulfuric acid it shows a blue fluorescence. Dragendorff's reagent gives a reddish-brown precipitate. Mayer's reagent gives a creamish-white precipitate. Nessler's reagent gives a black precipitate of metallic mercury.

C-192—HYDROCARBONS IN UNSAPONIFIABLE MATTER

(*J. Grossfeld Z. Unters. Lebensm.*, **78**, *273-285, 1939*)

On shaking 3 ml of potassium hydroxide solution (sp. gr. 1.50), 20 ml of 96 percent alcohol, 20 ml of water and 50 ml of benzine (b.p. 60-70° C) with a weighed quantity of paraffin (paraffin-wax or mineral oil), and, after separation of the phases, evaporating 25 ml of the benzine solution, recovery of the paraffin is quantitative. With cholesterol there is a 98 percent recovery. If, however, palmitic acid is added, paraffin and cholesterol behave differently. Under these conditions the proportion of paraffin (calculated on 50 ml of benzine) becomes 109 percent, and that of the cholesterol only 26 percent. The apparent high yield of paraffin is due to the diffusion of benzine into the soap solution; this amounts to 7 ml, so that the concentration of paraffin in the residual 43 ml is increased. A new analytical constant, the hydrocarbon value (HCV) has been based on this difference. A weighed quantity of the unsaponifiable matter (e.g. 0.5 g) is mixed with 5 gm of a fatty acid (conveniently palmitic or oleic acid), 20 ml of 96 per cent alcohol, 3 ml of potassium hydroxide solution (sp. gr. 1.50) and a few granules of pumice, and boiled for 5 minutes beneath a reflux condenser. The mixture is then cooled to about 38° C if palmitic acid was used or to about 15° C for oleic acid, and gently mixed with 50 ml of benzine (b.p. 60-70° C). After further cooling if palmitic acid was used, 20 ml of water is added, and the flask is closed with a rubber stopper, shaken and allowed to stand overnight. Twenty-five ml of the benzine solution is then transferred to an Erlenmeyer flask by means of a pipette, the benzine is distilled off, and the residue is dried at 105° to 110° C and weighed. A control test is made simultaneously with the reagents alone, and the amount of residue obtained is deducted from the residue containing the unsaponifiable matter. The following constants (P.HCV = palmitate hydrocarbon value; O.HCV = oleate hydrocarbon value) were determined:

	Paraffin	*Sterol*	*Cetyl Alcohol*
P.HCV	109	26	39
O.HCV	107	27	43

For calculating the amount of paraffin in presence of sterol only, the formula is:

$x = 1.21$ (P.HCV-26) or 1.25 (O.HCV-27).

If only cetyl alcohol is present with paraffin,

$x = 1.43$ (P.HCV-39) or 1.56 (O.HCV-43).

For mixtures of cetyl alcohol and sterol the amount of the former is calculated by the formula: $C = 7.7$ (P.HCV-26) or 6.25 (O.HCV-27). When the unsaponifiable matter contains the three components, one must be determined separately e.g. sterols by precipitation with digitonin. The two others can then be calculated from the hydrocarbon value. For example, in a test experiment in which a mixture of 0.120 g of paraffin, 0.210 of cetyl alcohol and 0.155 gm of cholesterol was taken, the amount of paraffin found was 0.119 gm.

C-193—HYDROGEN DIOXIDE, SOLUTION OF (*U.S.P.*)

Identification: Shake 1 cc of solution of hydrogen peroxide with 10 cc of distilled water containing 1 drop of diluted sulfuric acid, and add 2 cc of ether; the subsequent addition of a drop of potassium dichromate T.S. produces an evanescent blue color in the aqueous layer. Upon agitation and standing, this blue color passes into the ethereal layer.

Limit of Preservative: Extract 100 cc of solution of hydrogen peroxide in a separator with a mixture of 3 volumes of chloroform and 2 volumes of ether, using 50 cc, 25 cc and 25 cc respectively, and evaporate the combined extractions to dryness at room temperature in a tared glass dish: the residue, if any, weighs not more than 50 mg.

Assay: Measure accurately 2 cc of solution of hydrogen peroxide, and transfer it to a suitable flask containing 20 cc of distilled water. Add 20 cc of diluted sulfuric acid, and titrate with tenth normal potassium permanganate. Each cc of tenth normal potassium is equivalent to 0.001701 gm of H_2O_2.

C-194—HYDROGEN PEROXIDE, TESTING BLEACH SOLUTIONS

(*N. W. Matthews, Chemist Analyst*, **24**, *No. 2, 15, 1935*)

In processes in which hydrogen peroxide is used as the principal ingredient of a bleaching solution, a quick and accurate method of testing its "volume" may be desirable. The method given here has been found, over a long period of time, to be reliable and accurate. It is useful in bleaching solutions in which there is little organic material.

The standard solution for titrating is 11.3 grams of c.p. potassium permanganate made up to one liter with distilled water. Twenty cc of diluted sulfuric acid (1 part acid to 5 of water) are poured into an Erlenmeyer flask, 2 cc of the hydrogen peroxide bleaching solution are added by means of a pipette and the mixture titrated in the cold with the standard potassium permanganate solution. The end point is accepted as the *first* "semi-permanent" trace of pink color. This end point is not permanent if there is organic matter present, but it does not fade too quickly. The volume of standard potassium permanganate solution used, as read from the burette, gives directly the "volume" of the active hydrogen peroxide solution. There are no calculations to make and a determination requires about 30 seconds or less. Thus, if the burette reading shows that 2.6

cc of $KMnO_4$ solution were required in a titration, the "volume" of the bleach solution is 2.6.

The reaction may be thus represented:

$$2\ KMnO_4 + 5\ H_2O_2 + 4\ H_2SO_4 = 2\ KHSO_4 + 2\ MnSO_4 + 8\ H_2O + 5\ O_2$$

C-195—HYDROSULFIDES

Sodium nitroprusside solution gives a deep violet coloration to ammoniacal or alkaline solutions of hydrosulfides. Alkaline earth sulfides that have hydrolyzed to the sulfhydryl form will also give the reaction.

C-196—HYDROSULFITES

Solutions of hydrosulfites decolorize methylene blue very rapidly. Sulfites and bisulfites do not decolorize under the same conditions.

To assay sodium hydrosulfite, weigh accurately about 1 gm of sample and place into volumetric flasks containing 5 cc of commercial formaldehyde solution and 20 cc of distilled water. Dissolve and fill to mark with distilled water. Use 20 cc aliquot, add 5 cc of dilute acetic acid and titrate with 0.1 *N* iodine. Each cc of 0.1 *N* iodine = 0.00435 gm $Na_2S_2O_4$.

C-197—HYDROXY QUINOLINE SULFATE

Soluble derivatives such as those of potassium, sodium or ammonium give a reddish-brown to black precipitate with Dragendorff's reagent, a crimson precipitate with Mayer's reagent and a yellow precipitate with bromine water. Aqueous solutions give a green color with iron or copper salts. Many metals, such as magnesium and aluminum, will form insoluble precipitates under certain conditions.

C-198—INVERT SUGAR

Invert sugar can be detected by adding 1 cc of a solution of the substance with 5 cc of alkaline cupric tartrate T.S. (Fehling's Solution) and heating the mixture to boiling. The Fehling solution must be fresh.

The degree of coloring (red to yellow) will depend upon the concentration of invert or other reducing sugar present. Benedict's solution may also be used for a similar test.

QUANTITATIVE TEST (U.S.P.)

Dissolve 20 gm of sucrose in enough distilled water to make 100 cc of solution, and filter if necessary. To 50 cc of the clear liquid contained in a 250-cc beaker, add 50 cc of alkaline cupric tartrate T.S., cover the beaker with a watch glass, heat the mixture at such a rate that it requires approximately 4 minutes to bring it to the boiling point, and boil for exactly 2 minutes. Add at once 100 cc of cold, recently boiled, distilled water, and immediately collect and weigh the precipitated cuprous oxide in the following manner: Prepare a Gooch crucible with an asbestos layer. Thoroughly wash the asbestos with distilled water followed successively by 10 cc of alcohol and 10 cc of ether, dry at 100° C for 30 minutes, and weigh the prepared crucible. Filter the precipitated cuprous oxide through the crucible thus prepared, thoroughly wash the residue on the filter with hot distilled water, then with 10 cc of alcohol and finally with 10 cc of ether, and dry at 100° C for 30 minutes.

C-199—IODATE, BASILEIOS TEST FOR

(*Merck Index*)

To 10 cc of the 5 percent solution to be tested, add 2 cc chloroform, 1 cc *N* H_2SO_4 and 1 cc 0.001 *N* sodium thiosulfate. Let stand 1 minute, then shake vigorously. A blue color in the chloroform indicates iodate. Sensitiveness, 1:100,000.

C-200—IODATE, TEST FOR IN THE PRESENCE OF CHLORATE BROMATE OR PERCHLORATE—REICHARD

(*Merck Index*)

Potassium iodate can be recognized in the presence of potassium bromate, chlorate, and perchlorate by adding some morphine sulfate and a little dilute H_2SO_4 when a brown, yellowish-brown or yellow color or even brown precipitate is produced according to the amount present.

C-201—IODATE, TEST FOR—SPACU-SPACU

(*Merck Index*)

If a few drops of 0.1 molar mercurous nitrate is added to a solution of 0.03 mg or more of iodate, a white precipitate of mercurous iodate is formed. An excess of the mercurous nitrate must be avoided or the precipitate will dissolve.

C-202—IODINE NUMBER—WIJS METHOD

(*A.O.C.S.*)

Preparation of Reagents. Wijs Iodine Solution. Dissolve 13.0 grams of resublimed iodine in 1 liter of C.P. glacial acetic acid and pass in washed and dried chlorine gas until the original thiosulfate titration of the solution is not quite doubled. Preserve the solution in amber glass-stoppered bottles, sealed with paraffin until ready for use. Mark on the bottles the date on which the solution is prepared and do not use Wijs solution that is more than 30 days old.

There should be no more than a slight excess of iodine, and no excess of chlorine. When the solution is made from iodine and chlorine, this point can be ascertained by not quite doubling the titration.

Note: McIlhiney (*J. Am. Chem. Soc.*, **29**, *1222, 1907*) gives the following details for the preparation of the iodine monochloride solution:

The preparation of the iodine monochloride solution presents no great difficulty, but it must be done with care and accuracy in order to obtain satisfactory results. There must be in the solution no sensible excess either of iodine or more particularly of chlorine over that required to form the monochloride. This condition is most satisfactorily attained by dissolving in the whole of the acetic acid to be used the requisite quantity of iodine, using a gentle heat to assist the solution, if it is found necessary, setting aside a small portion of this solution, while pure and dry chlorine is passed into the remainder until the halogen content of the whole solution is doubled. Ordinarily, it will be found that by passing the chlorine into the main part of the solution until the characteristic color of free iodine has just been discharged there will be a slight excess of chlorine which is corrected by the addition of the requisite amount of the unchlorinated portion until all free chlorine has been destroyed. A slight excess of iodine does little or no harm, but excess of chlorine must be avoided.

The glacial acetic acid used for preparation of the Wijs solution should be of 99.0 to 99.5 percent strength. For glacial acids of somewhat lower strength the Committee

recommends freezing and centrifuging or draining as a means of purification.

0.1 N Sodium Thiosulfate Solution. Dissolve 24.8 grams of C.P. sodium thiosulfate in recently boiled distilled water and dilute with the same to 1 liter at the temperature at which the titrations are to be made.

Starch Paste. Boil 1 gram of starch in 200 cc of distilled water for 10 minutes and cool to room temperature.

An improved starch solution may be prepared by autoclaving 2 grams of starch and 6 grams of boric acid dissolved in 200 cc of water at 15 pounds pressure for 15 minutes. This solution has good keeping qualities.

Potassium Iodide Solution. Dissolve 150 grams of potassium iodide in water and make up to 1 liter.

0.1 N Potassium Bichromate. Dissolve 4.903 grams of C.P. potassium bichromate in water and make the volume up to 1 liter at the temperature at which titrations are to be made.

Occasionally potassium bichromate is found containing sodium bichromate, although this is rare. If the analyst suspects that he is dealing with an impure potassium bichromate, the purity can be ascertained by titration against freshly resublimed iodine. However, this is usually unnecessary.

Standardization of Sodium Thiosulfate Solution. Place 40 cc of the potassium bichromate solution, to which has been added 10 cc of the solution of potassium iodide, in a glass-stoppered flask. Add to this 5 cc of strong hydrochloric acid. Dilute with 100 cc of water, and allow the 0.1 *N* sodium thiosulfate to flow slowly into the flask until the yellow color of the liquid has almost disappeared. Add a few drops of the starch paste, and with constant shaking continue to add the 0.1 *N* sodium thiosulfate solution until the blue color just disappears.

Determination. Weigh accurately from 0.10 to 0.25 gram (depending on the iodine number) of the melted and filtered sample into a clean, dry, 450-cc (16-ounce) glass-stoppered bottle containing 15 to 20 cc of carbon tetrachloride or chloroform. Add 25 cc of iodine solution from a pipette, allowing to drain for a definite time. The excess of iodine should be from 50 to 60 percent of the amount added—that is, from 100 to 150 percent of the amount absorbed. Moisten the stopper with a 15 percent potassium iodide solution to prevent loss of iodine or chlorine, but guard against an amount sufficient to run down inside the bottle. Let the bottle stand in a dark place for 30 minutes at a uniform temperature, and then add 20 cc of 15 percent potassium iodide solution and 100 cc of distilled water. Titrate the iodine with 0.1 *N* sodium thiosulfate solution, added gradually with constant shaking, until the yellow color of the solution has almost disappeared. Add a few drops of starch paste and continue titration until the blue color has entirely disappeared. Toward the end of the reaction, stopper the bottle and shake violently, so that any iodine remaining in solution in the tetrachloride or chloroform may be taken up by the potassium iodide solution. Conduct two determinations on blanks which must be run in the same manner as the sample except that no fat is used in the blanks. Slight variations in temperature quite appreciably affect the titer of the iodine solution, as acetic acid has a high coefficient of expansion. It is, therefore, essential that the blanks and determinations on the sample be made at the same time. The number of cubic centimeters of standard thiosulfate solution required by the blank, less the amount used in the determination, gives the thiosulfate equivalent of the iodine absorbed by the amount of sample used in the determination. Calculate to centigrams of iodine absorbed by 1 gram of sample (=percent iodine absorbed).

The well-known Wijs method for the determination of iodine number has been adopted by the Committee after careful comparison with the Hanus and Hubl methods. The Hubl method was eliminated almost at the beginning because the time required for complete absorption of the iodine is unnecessarily long; in fact, even after absorption overnight, it is apparently not complete. In the Hanus and Wijs methods complete adsorption takes place in from 15 minutes to an hour, depending on conditions. Formerly, many chemists thought the Hanus solution easier to prepare than the Wijs solution, but the experience of the Committee did not bear this out. Furthermore, absorption of iodine from the Wijs solution appeared to take place with greater promptness and certainty than from the Hanus and was complete in a shorter time. In the case of oils showing high iodine absorption results by the Wijs method were also in better agreement than with the Hanus solution and showed a slightly higher iodine absorption for the same length of time. However, the difference was not great.

C-203—IODINE VALUE

(Hanus Method) (*U.S.P.*)

The iodine value of a fat or oil represents the number of grams of iodine capable of being absorbed, under the prescribed conditions, by 100 gm of the substance. It is determined as follows: Introduce about 0.8 gm of a solid fat or about 0.3 gm of an oil, accurately weighed, into a glass-stoppered flask or bottle of 250-cc capacity, dissolve it in 10 cc of chloroform, add 25 cc of iodobromide T.S., accurately measured from a burette or pipette, stopper the vessel securely, and allow it to stand for thirty minutes protected from light. Then add in the order named 30 cc of potassium iodide T.S. and 100 cc of distilled water, and titrate the liberated iodine with tenth-normal sodium thiosulfate, shaking thoroughly after each addition of thiosulfate. When the iodine color becomes quite pale, add 1 cc of starch T.S. and continue the titration with thiosulfate until the blue color is discharged. Carry out a blank test at the same time with the same quantities of chloroform and iodobromide solution, allowing it to stand for the same length of time and titrating as directed. The difference between the number of cc of thiosulfate consumed by the blank test and the actual test, multiplied by 1.269 and divided by the weight of sample taken, gives the Iodine Value.

Note: If more than half of the iodobromide T.S. is absorbed by the portion of the substance taken, the determination must be repeated, using a smaller portion of the substance under examination.

C-204—IRON

(*U.S.P.*)

Ferrous or ferric compounds in solution yield a black precipitate with ammonium sulfide T.S. This precipitate is dissolved by cold diluted hydrochloric acid with the evolution of hydrogen sulfide.

Ferric Salts: Acid solutions of ferric salts yield a dark blue precipitate with potassium ferrocyanide T.S. With an excess of sodium hydroxide T.S., a reddish-brown precipitate is formed. Solutions of ferric salts produce with am-

monium thiocyanate T.S. a deep red color which is not destroyed by diluted mineral acids.

Ferrous Salts: Solutions of ferrous salts yield a dark blue precipitate with potassium ferricyanide T.S. This precipitate is insoluble in diluted hydrochloric acid, but is decomposed by sodium hydroxide T.S. Solutions of ferrous salts yield with sodium hydroxide T.S. a greenish-white precipitate, the color rapidly changing to green and then to brown on shaking.

C-205—IRON IN TALC

(*G. Wallrabe and H. Schartner. Apoth.- Ztg.*, **48**, *471, 1933*)

Pour over 0.05 gm salicylic acid in a porcelain dish about 10-20 drops alcohol and mix with 2 gms talc and set aside. After 1 hour the mixture should not show more than a weak red color.

C-206—IRON OXIDES

These are present in colored cosmetics such as face powder, cake make-up and leg make-up. Isolate either from the ash or the fat-free portion, dissolve in hydrochloric acid and test for iron, C-204. This test confirms the presence of iron oxides only but does not tell the type used. There are at least a dozen different kinds of iron oxides used in cosmetics, each having a different color.

C-207—8-HYDROXYQUINOLINE FOR THE DETERMINATION OF IRON, TITANIUM AND ALUMINUM IN A MIXTURE

(*A. M. Zan'ko and G. A. Butenko, Zaradskaya Lab.* **5**, *415, 1936*)

(Bulletin No. 794, Eastman Kodak Co.)

The method is based chiefly on the use of accurate acetic acid acidity and a definite balance between tartaric acid and ammonium oxalate in the solutions, permitting a complete separation of titanium and aluminum with 8-hydroxyquinoline.

To 100 cc of the solution containing the three metals as their oxides are added 3 grams of ammonium acetate and one gram of tartaric acid. The solution is neutralized with ammonium hydroxide, 20 cc of 80 percent acetic acid and a slight excess of 8-hydroxyquinoline in acetic acid added. The solution is heated nearly to boiling, digested on a water bath and the ferric hydroxyquinolate filtered off through a No. 4 glass filter. The precipitate is washed with 1 percent acetic acid and water, dried at 110° C and weighed.

The filtrate is evaporated to 150 cc, 4 grams of ammonium oxalate added, the solution neutralized with ammonium hydroxide to litmus and 3-5 drops of acetic acid added. The mixture is heated to 60° C, the reagent added as before and boiled 10 minutes. The precipitate of titanium hydroxyquinolate is removed by filtration, washed with hot water, dried at 110° C and weighed.

The filtrate is diluted to 500 cc, 100 cc taken, an excess of ammonium hydroxide and reagent added as above and the aluminum separated as described.

The precipitates instead of being determined gravimetrically may be dissolved and titrated by the Berg method, or potentiometrically by the method of Atanasiu and Velculescu.

C-208—ISOBUTYL ALCOHOL, COLOR REACTION OF

(*Ztschr. angew. Ch., 1929, p. 349*)

To the neutral sample, add a 1 percent solution of sodium ferrocyanide. If isobutyl alcohol is present a light brown color will develop in the aqueous layer. If an excess of the isobutyl alcohol is present, the second layer will be colored orange. The color seems to develop better on boiling. Methyl, ethyl and propyl alcohol and acetone will produce turbidity or slight precipitation while amyl acetate precipitates without dissolving upon heating.

C-209—ISOPROPYL ALCOHOL

(*Bull. Natl. Form. Comm.* **XI**, *Nos. 11 & 12, 210-11*)

Distillation range—Isopropyl alcohol distils completely at not less than 81° and not more than 83° C when determined by Method I for Boiling and Distilling Temperatures, U. S. P.

Identification—To 2 cc of isopropyl alcohol and 3 cc of distilled water contained in a test tube, add 1 cc of mercuric sulfate T.S. and warm gently. A white precipitate or turbidity is formed. See also C-11 and 12.

JABORANDI

See Pilocarpus

C-210—KAOLIN

(*N.F.*)

Identification: Mix 1 gm of kaolin with 10 cc of distilled water and 5 cc of sulfuric acid in a porcelain dish. Evaporate the mixture until the excess of water is removed, and further heat the residue until dense white fumes of sulfuric anhydride appear; then cool, add cautiously 20 cc of distilled water, boil for a few minutes, and filter; there remains on the filter a gray residue (impure silica). The filtrate responds to the tests for aluminum.

C-211—KARAYA, ADULTERATION OF TRAGACANTH

(*Tschirch and Flueck Pharm. Act. Hel., p. 12, 1928*)

The gum is obtained from different karaya species and resembles acacia more than tragacanth. The powdered gum is clear white, of slightly acid odor and is often used to adulterate powdered tragacanth. It does not form a mucilage, but swells with water, like tragacanth.

Test: to 20 cc of a freshly prepared solution of 1 percent tragacanth add 0.55 cc of H_2O_2 and 0.5 cc 1 percent alcoholic benzidin solution and shake vigorously. After 15 minutes hold this solution against a sheet of white paper—no bluish spots should be noticeable. (*Through Druggists Circular, p. 46, Oct. 1929.*)

C-212—KERATIN

Prepare a reagent according to the directions of Dyer and Baudisch (*J. Biol. Chem.* **95**, *483, 1932*) by mixing together 0.4 grams catechol, 1½ grams cadmium sulfate anhydrous and 1½ grams silver oxide with 10 cc dry ether, shaking for about a half minute. Filter at once and chill filtrate in a freezing mixture. Decant ether and wash the crystals with two 2-cc portions of cold ether, then dissolve them in 8 cc of chloroform.

Prepare the sample containing keratin by adding 2 cc of concentrated hydrochloric acid to 1 gram of the sample, digesting with heat even if the material has dissolved. Boil for at least 10 minutes. To 2 cc of this solution, add a few pieces of mossy tin and heat for 2 minutes. Filter, dilute filtrate to 15 cc, saturate with H_2S. Add 0.2 gram charcoal, shake for a minute, filter. Boil filtrate to make free of H_2S, cool, acidify, add 4 cc of reagent above and shake well. Deep red color indicates cystine which is a component of keratin.

C-213—KETONES, A NEW COLOR TEST FOR

(*S. M. Efros; Khim. Referat. Zhur.* **2**, *No. 5, 65, 1939*)

A solution of $K_4Fe(CN)_6$ with NH_4 molybdate gives a brown color with certain ketones. The sensitivity of the test with acetylacetone is about 1.6 gamma/cc and for dipropyl ketone 114 gamma/cc. Other ketones give unstable or very slight colorations. The test is useful for determining acetylacetone in the presence of other ketones.

C-214—MODIFIED KREIS TEST, APPLICABLE TO COSMETIC PREPARATIONS

(*J. H. Jones, J. Assoc. Off. Agr. Chem.* **27**, *128, 1944*)

PROPOSED METHOD

Apparatus. A convenient aeration apparatus for use with 2-10 gram samples may be constructed from three 1 x 6 inch test tubes. Fit each test tube with a two-holed rubber stopper, each stopper carrying one short piece of glass tubing and one long enough to reach to the bottom of the test tube. Connect in series with rubber tubing so that when attached to the air line the air enters each test tube through the long piece of glass tubing. Tube 1 serves as the aerator, Tube 2 is loosely packed with glass wool to filter any entrained oil, and Tube 3 is the absorber.

Reagents. (a) Absorption solution. Dissolve 0.2 gram of phloroglucinol in 100 ml of (1+9) HCl. Prepare a fresh solution daily.

(b) Hydrochloric acid. 37 percent. Use acid that gives no color with an equal volume of the absorption solution.

(c) Mineral oil. U.S.P. light mineral oil, or a similar grade.

Preparation of Sample. (1) Liquid samples consisting essentially of oils. Weigh 2-10 grams of the sample directly into the aeration tube.

(2) Solids or emulsions containing at least 50 percent oil. Mix a weighed sample of 2-10 grams in the aeration tube with about two volumes of mineral oil. Heat in a boiling water bath until the sample liquefies, mix thoroughly, and cool to room temperature.

(3) Emulsions or solutions containing a low percentage of oil. Evaporate a weighed sample containing 2-10 grams of oil in a vacuum desiccator at room temperature until the oil content is over 50 percent. Mix with mineral oil in the aeration tube as directed in (2).

Detection of Epinhydrin Aldehyde. Place the absorption solution in the absorber, using for routine tests 2 ml for each gram of oil in the sample. Add to the aeration tube containing the prepared sample a volume of concentrated HCl equal to the total volume of sample and mineral oil. Assemble the apparatus and pass air through it at a rapid rate for 30 minutes. A pink color in the absorption solution indicates deteriorated oils. A yellow color or cloudiness should be disregarded.

COMMENTS

The procedure described obviously eliminates the interference due to the color of the product. To check the effect of other aldehydes, perfumes, flavors, and essential oils about 0.2 gram of various substances of this type was mixed with 5 ml of mineral oil and tested. The substances listed below gave no color, although in a few cases the absorption solution became cloudy. With Taufel's absorption solution (containing concentrated hydrochloric acid) many of these substances produced colors that varied from yellow to deep red.

Substances that do not give positive tests

Anisic Aldehyde	Phenylacetaldehyde
Anethol	Phenylethyl alcohol
Benzaldehyde	Terpineol
Camphor	Vanillin
Coumarin	Oil of bay
Ethyl vanillin	Oil of bergamot
Eucalyptol	Oil of cloves
Geraniol	Oil of citronella
n-Heptaldehyde	Oil of lemon
Heliotropin	Oil of orange
B-Ionone	Oil of patchouli
Iso-eugenol	Oil of peppermint
Iso-safrole	Oil of pine
Menthol	

Cinnamic aldehyde, eugenol, oil of cinnamon, and oil of cassia gave a yellow color with both absorption reagents. The color, however, was a pure yellow and would not be mistaken for a positive test.

Attempts to use the proposed procedure for the quantitative estimation of epinhydrin aldehyde were not successful. However, it can be used to classify the products tested. If 2 ml of absorption solution is used for each gram of oil in the sample fresh oils give no coloration, oils which are slightly deteriorated produce a light pink color, and badly decomposed oils give a deep pink color.

C-215—LACTATE

(*U.S.P.*)

Solutions of lactates, when acidulated with sulfuric acid, potassium permanganate T.S. added, and the mixture heated, evolve acetaldehyde which is recognizable by it's color.

C-216—LACTIC ACID

(*U.S.P.*)

Assay: Add 50 cc of normal sodium hydroxide to about 2.5 cc of lactic acid, accurately weighed in a tared 250 cc flask, and boil the mixture for about 20 minutes. Titrate the excess of alkali in the hot solution with normal sulfuric acid, using phenolphthalein T.S. as the indicator. Perform a blank test with the same quantities of the same reagents and in the same manner, and make any necessary corrections. Each cc of normal sodium hydroxide is equivalent to 0.09008 gm of $HC_3H_5O_3$.

C-217—LACTIC ACID, TEST FOR—CRONER-CRONHEIM

(*Merck Index*)

The reagent is a solution of 2 gms potassium iodide and 1 gm iodine in 50 cc water to which 5 gms aniline is added. Boil the liquid to be tested with KOH solution, then add some of the reagent. An odor of isonitrile develops if lactic acid is present. Sensitiveness 1:4000.

C-218—LACTIC ACID, TEST FOR—EEGRIWE

(*Merck Index*)

To a drop of the solution to be tested, add 1 cc H_2SO_4 and heat for 2 minutes at 85°; then cool to 25°, add a little solid p-hydroxydiphenyl, mix and allow to stand for ½ hour. Lactic acid gives a violet color. Sensitiveness, 0.1 mg.

C-219—LAEVULOSE IN THE PRESENCE OF DEXTROSE AND SUCROSE, DETERMINATION OF

(H. C. Becker and D. T. Englis
Ind. and Eng. Chem., Anal. Ed. **13,** *15, 1941)*

The method is based on the oxidation of the laevulose with potassium ferricyanide, in the presence of disodium phosphate and sodium carbonate, under specified conditions. That the oxidation is carried out at 50° C for sixty minutes and that the amount of laevulose taken exceeds 20 percent of a maximum of 90 mg of a laevulose and dextrose mixture, are the most important conditions. The resulting solution is acidified with sulfuric acid and titrated with ceric sulfate, using diphenylamine sulfonate as indicator. The reducing action of dextrose under these conditions is slight; this can be corrected for by means of a determined factor. Under the above conditions the method is accurate to within 0.5 percent, but below the 20 percent limit of laevulose the accuracy rapidly decreases. Large amounts of sucrose may be present without interference being caused. *(Quart. J. of Pharm. & Pharmacol.* **15,** *75-6, 1942).*

C-220—LANOLIN

Wool Fat *(U.S.P.)*

Solubility: Wool fat is insoluble in water, but mixes without separation with about twice its weight of water. It is sparingly soluble in cold alcohol, more soluble in hot alcohol, and freshly soluble in ether and in chloroform.

Melting Point: The melting point of wool fat is between 36° and 42° C.

Loss On Drying: When dried to constant weight on a water bath with frequent stirring wool fat loses not more than 0.5 percent of its weight.

Ash: Wool fat yields not more than 0.1 percent of ash.

Free Alkalis: Dissolve 2 gms of wool fat in 10 cc of ether and add 2 drops of phenolphthalein T.S.; the liquid is not colored red.

Water Soluble Acids or Alkalis: Warm 10 gms of wool fat with 50 cc of distilled water on a water bath, constantly stirring the mixture until the wool fat is melted: the fat separates completely on cooling, leaving the aqueous layer nearly clear and neutral to litmus paper.

Chloride: Boil 20 cc of alcohol with 1 gm of wool fat under a reflux condenser, cool, filter, and add to the filtrate 5 drops of an alcoholic solution of silver nitrate (1 in 50): the turbidity, if any, is not greater than that produced in the same volumes of the same reagents by 0.5 cc of fiftieth normal hydrochloride acid.

Ammonia: A 10 cc portion of the aqueous layer obtained in the test for water soluble acids or alkalis emits no ammonia vapors when boiled with 1 cc of sodium hydroxide T.S.

Glycerin: A 10 cc portion of the filtered aqueous layer obtained in the test for water soluble acids or alkalis leaves no sweet residue on evaporation.

Soluble Oxidizable Impurities: A 10 cc portion of the filtrate obtained in the test for water soluble acids or alkalis leaves no sweet residue on evaporation.

Petrolatum: Boil 40 cc of dehydrated alcohol with 0.5 gms of wool fat: the solution is clear or not more than opalescent.

Acid Value: The free acids in 10 gms of lanolin require for neutralization not more than 2 cc of tenth normal sodium hydroxide.

Iodine Value: The iodine value of wool fat is not less than 18 and not more than 36, using 0.8 to 0.85 gm of the wool fat.

C-221—LANOLIN HYDROUS

(U.S.P.)

Loss on Drying: When dried to constant weight on a water bath with frequent stirring hydrous wool fat loses not less than 25 percent and not more than 30 percent of its weight.

Reaction: With ether and with chloroform hydrous wool fat yields turbid solutions which are neutral to moistened litmus paper.

Petrolatum: Hydrous wool fat deprived of water by drying on a water bath meets the requirements of the test for petrolatum under Adeps Lanae.

Other Requirements: Hydrous wool fat complies with the tests for free alkalis, water soluble acids or alkalis, chloride, ammonia, glycerin and for acid value under Adeps Lanae, allowance being made for the proportion of water present.

Iodine Value: The iodine value of hydrous wool fat, deprived of water by drying on a water bath, is not less than 18 and not more than 36, using 0.8 to 0.85 gm of dried hydrous wool fat.

LAURATES

See Under Oleic Acid C—

C-222—TENTATIVE METHOD FOR DETERMINATION OF LEAD IN PETROLEUM PRODUCTS

(T.G.A. Method No. 4-A)

Weigh a 25-gm sample of the product into a 600 cc lipped Pyrex beaker. Heat to 400-500° F on a hot plate and ignite the oil by applying a gas flame on the surface. Let the oil burn quietly until carbonization is complete and the flame has died out. Remove beaker from the hot plate, cool and then add 15 cc concentrated sulfuric acid. Cover with a watch glass and heat on the hot plate until the sulfuric acid begins to boil and condensation of the acid takes place on the side of the beaker. This will wash down most of the carbonaceous matter deposited on the sides of the beaker. Add cautiously, drop by drop, concentrated nitric acid to oxidize the carbonaceous matter present in the sulfuric acid. Such additions are made intermittently until all of the carbonaceous matter has been oxidized and the resulting solution has acquired a light yellow color. The temperature of the mixture is then increased until copious fumes of SO_3 are evolved.

This process should destroy most of the organic matter left in the acid and the resulting solution should be practically colorless. If not colorless, one or two drops of concentrated nitric acid are cautiously added and the heating continued until the solution is colorless. The beaker is then removed from the hot plate, cooled to room temperature and carefully diluted with distilled water. Replace on the hot plate, add 25 cc of saturated ammonium oxiate solution and evaporate again to fumes of SO_3. Remove from hot plate, cool and dilute to 250 cc in a volumetric flask.

Withdraw a 25 cc aliquot into a 50 cc Nessler tube, add 10 cc of Dithizone reagent and 3 cc of Reagent No. 2,

dilute to 50 cc mark with distilled water, stopper and shake well for 30 seconds. After settling, the color comparison is made by matching the chloroform layers with standards of known lead content. The color comparison is carried out by viewing the chloroform layers transversely against a white background. The pH range of the samples thus prepared will vary between 10.5 to 10.8, while those of the standards are 11.3.

All distilled water and acids used should be freshly redistilled or accurate blanks carried out using the exact amount of reagent added in each operation.

Preparation of Standard Solutions

1. 50 mg dithizone in one liter of U.S.P. redistilled chloroform.
2. 10 gms of sodium or potassium cyanide and 10 gms citric acid are dissolved in 500 cc of 28 percent ammonia, then diluted to 1000 cc with distilled water.
3. The standard lead solution is prepared by dissolving 15.9855 gms of pure, dry lead nitrate crystals in distilled water, acidified with 1 cc concentrated nitric acid and the solution diluted to a liter. This solution will contain 10 mg of lead per cc. Prepare a standard lead solution containing 0.01 mg of lead per cc. The basic lead compounds have a tendency to precipitate from more dilute solutions. Accordingly, the actual standards must be prepared freshly for immediate use from the 0.01 mg of lead per cc solution, and have the following composition:

   0.000, 0.005, 0.01, 0.015, 0.025, 0.030, 0.035, 0.040, 0.045 and 0.050 mg of lead.

Use 50 cc Nessler tubes; add 10 cc of dithizone solution and 3 cc of Reagent No. 2; dilute up to the mark with distilled water; stopper and shake well for 30 seconds. After settling, compare the color of the chloroform layers. The colors will vary from pale blue in very dilute solutions through a series of purple, red and finally to a deep cherry red color in the more concentrated solutions. The supernatant aqueous layer will be orange colored. The following metals interfere with the color reaction: Zinc from 20 parts per million, manganese from 10 parts per million, copper from 0.4 parts per million. When copper is present a bright yellow color will result which has a tendency to bleach the color produced by lead. It is, therefore, imperative that all vessels such as beakers, Nessler tubes, etc., must be scrupulously cleaned and free from lead and the above metals.

Purification of Dithizone

Dissolive 1 gm of dithizone in 50-75 cc of chloroform; filter into a 250 cc pear-shaped separatory funnel; add 100 cc metal free redistilled ammonia and shake well. The Dithizone will pass into the aqueous layer which will be orange colored. Repeat this ammonia extraction of the chloroform layer three times and filter these colored aqueous layers through a cotton plug into a 500 cc separatory funnel. Acidify with dilute hydrochloric acid. The precipitated dithizone is then extracted with three 20-cc portions of chloroform. Transfer these layers into another separatory funnel and wash three times with redistilled water. Transfer the chloroform layer into a beaker and evaporate the chloroform at a temperature under 50° C, using vacuum to avoid spattering. This purified dithizone is used for the standard solution.

C-223—LEAD IN POWDERS

(Interim T.G.A. Method No. 13-A)

Place 2 gms of sample in a platinum dish and incinerate for 1-2 hours at 500-525° C. Cool and treat with 5 ml of 60 percent $HClO_4$. Take to fumes on a hot plate with 3 successive portions of HF. Cool and dilute with water.

(a) If the solution remains clear, transfer to a separatory funnel, dilute to 150-200 ml, add 10 gms of citric acid and proceed with the dithizone extraction of lead as given in paragraph 16, Chapter 29 of the Methods of Analysis of the Association of Official Agricultural Chemists, 5th edition, finally estimating lead as directed in paragraph 18-20, or as directed in paragraphs 21-23.

(b) If the solution becomes turbid upon dilution, filter off as much as possible of the precipitate as directed on bottom of page 397, paragraph 14 of the above chapter, catching the filtrate in a 500 ml glass stoppered Erlenmeyer flask. Dilute to about 200 ml, add 10 gms of citric acid, and proceed with a sulfide separation of lead as directed in paragraph 17, using a little copper as gatherer for the lead sulfide. Ignore colloidal material that may pass through the filter. Estimate as before with either the electrolytic procedure (paragraphs 18-20) or the dithizone procedure (21-23).

C-224—LEAD LIMIT TEST

(N.F.)

The Lead Limit Test is designed to determine the limit of lead as an impurity in some official substances to which the U.S.P. XII heavy metal test cannot apply.

Reagents

Chloroform, Redistilled—Distill chloroform from calcium oxide in resistant all-glass distillation apparatus previously cleaned with a hot aqueous nitric acid (1 in 2). Pyrex glass is suitable for this purpose.

Dithizone (Diphenylthiocarbazone) Purified—Dissolve 1 gm of commercial dithizone in about 50 cc of chloroform contained in a separator. Extract with four 100 cc portions of 1 percent ammonium hydroxide. Filter the ammoniacal extracts through a pledget of cotton inserted in the stem, into a large separator. Make slightly acid with hydrochloric acid and extract with three 20 cc portions of redistilled chloroform. Combine the extracts in a separator and wash with three 20 cc portions of water. Separate the chloroform into a beaker and evaporate on a steam bath (as the solution goes to dryness there is great tendency to spatter). Heat for one hour at 50° C in vacuo. Store in a dark, tightly stoppered bottle.

Nitric Acid Solution, 1 percent—Dissolve 10 cc of nitric acid in enough distilled water to make one liter.

Potassium Cyanide Solution, 10 percent—Dissolve 20 gm of potassium cyanide in enough distilled water to make 200 cc.

Ammonia-Cyanide Solution—To 100 cc of the potassium cyanide solution, in a 500 cc volumetric flask, add enough stronger ammonia water to make 19.1 gm of ammonia and dilute to volume with distilled water.

Stronger Dithizone Solution—Dissolve 80 mg of purified dithizone in enough redistilled chloroform to make 1000 cc of solution.

Standard Dithizone Solution—Dilute 10 cc of the stronger

dithizone solution to 1 liter with redistilled chloroform; store in a refrigerator while not in use.

Standard Lead Solution—0.001 mg per cc—Dissolve 0.1599 gm of $Pb(NO_3)_2$ in 1000 cc of 1 percent nitric acid solution. Dilute 10 cc of this solution to one liter with the nitric acid solution.

PROCEDURE

Add 3 cc of potassium cyanide solution to the sample prepared as specified in the monograph. Extract with two 10 cc portions of the stronger dithizone solution followed with one 10 cc portion of chloroform. Combine the three extracts in another separator and wash with 10 cc of distilled water to which a few drops of potassium cyanide solution have been added. Withdraw this chloroform layer into a separator and wash the aqueous layer with 10 cc of chloroform. Combine this chloroform with the first chloroform extract and extract with two 25 cc portions of the 1 percent nitric acid solution. Discard the chloroform layer from the second extraction and transfer the aqueous layer to that of the first extraction. Rinse the separator with 5 cc of distilled water and add it to the combined aqueous layers. Wash the aqueous solution with 10 cc of chloroform. Discard the chloroform layer and add 10 cc of ammonia-cyanide solution to the aqueous solution. Extract with successive 20 cc portions of the standard dithizone solution, shaking each portion with the aqueous layer for two minutes. Allow the aqueous layer to become clear and shake down any chloroform remaining on top of the aqueous layer. Collect each extraction in uniform test tubes of 25 cc capacity. The end-point to the number of extractions is that point at which the color of the chloroform layer, when viewed through the top of the tube and above a white background, has changed to purple. Record the number of extractions.

C-225—LEAD

(*U.S.P.*)

Solutions of lead salts yield with diluted sulfuric acid a white precipitate which is insoluble in diluted hydrochloric or nitric acid, but completely soluble in warm sodium hydroxide T.S. and in ammonium acetate solution. With potassium chromate T.S. solutions of lead salts, free or nearly free from mineral acids, yield a yellow precipitate which is insoluble in acetic acid but soluble in sodium hydroxide T.S.

C-226—LECITHIN AND CHOLINE, TEST FOR—SANCHEZ

(*Merck Index*)

The test for choline is based on the conversion of the nuclear molecule into iodoform by means of iodine-potassium iodide and sodium hydroxide.

For the detection of lecithin, boil 0.1 gm with 10 cc of 5 percent NaOH solution for 5 minutes, cool and add a 0.5 percent H_2SO_4 solution by drops until the reaction is acid and filter off the liberated fatty acids through a wet filter. The aqueous filtrate contains choline, H_3PO_4 and glycerin, and 1 cc of the filtrate can be used for carrying out the reaction as above.

C-227—LINSEED

(*U.S.P.*)

The investing coat of the seed abounds in a peculiar gummy matter or mucilage amounting to about 6 percent of the seeds. This is readily soluble in hot water, forming a thick viscid mucilage, which deposits white flakes upon the addition of alcohol and affords a copious dense precipitate with lead subacetate. Proteins are present to the extent of about 20 percent and sugars to the extent of about 18 percent.

The gum of linseed contains in the dry state more than 10 percent of mineral substances; when freed from these and dried at 110° C, it has, like althaea mucilage, the formula $C_{12}H_{20}O_{10}$. The seeds by exhaustion with cold or warm water affords about 15 percent of this mucilage. By boiling with nitric acid, it yields crystals of mucic acid; by diluted mineral acids, it is broken up into dextrogyrate gum, sugar, and cellulose.

C-228—LITHIUM, NEW SELECTIVE REAGENT FOR APPLICATION TO THE RAPID VOLUMETRIC ESTIMATION OF LITHIUM IN THE PRESENCE OF POTASSIUM AND SODIUM

(*L. B. Rogers and E. R. Caley, Ind. Eng. Chem., Anal. Ed.* **15**, *209, 1943*)

By systematic trials a special reagent for lithium was obtained. Dissolve 24 gm of KOH in 100 ml of water and when nearly cool, add 10 gm of KIO_4. Lithium is precipitated as a complex periodate of indefinite composition. If the alkalinity is adjusted properly, other alkali cations are not precipitated and if the precipitation is carried out under prescribed conditions the lithium content can be established fairly satisfactorily when 5 to 200 gm of lithium is present; by titrating the iodide in the precipitate with either $Na_2S_2O_3$ or NaH_2AsO_3 solution.

C-229—MAGNESIUM

(*U.S.P.*)

Solutions of magnesium salts in the presence of ammonium chloride yield no precipitate with ammonium carbonate T.S., but on the subsequent addition of sodium phosphate T.S. a white crystalline precipitate is produced which is insoluble in ammonia T.S.

C-230—MAGNESIUM CARBONATE

(*U.S.P.*)

Identification: When magnesium carbonate is treated with diluted hydrochloric acid, it dissolves with effervescence and the resulting solution responds to the tests for magnesium.

Assay: Dissolve about 1 gm of magnesium carbonate, accurately weighed, in 30 cc of normal sulfuric acid, and determine the residual acid by titrating with normal sodium hydroxide, using methyl orange T.S. as the indicator. From the volume of the normal sulfuric acid consumed deduct the volume of normal sulfuric acid corresponding to the content of calcium oxide in the weight of magnesium carbonate taken for the assay. The difference is the normal sulfuric acid equivalent to the magnesium oxide present. Each cc of normal sulfuric acid is equivalent to 0.02016 of MgO or to 0.02804 gm of CaO.

C-231—MAGNESIUM OXIDE

(*U.S.P.*)

Assay: Ignite about 0.5 gm of magnesium oxide to con-

stant weight in a tared platinum crucible, weigh the residue accurately, dissolve it in 30 cc of normal sulfuric acid, and determine the residual acid by titrating with normal sodium hydroxide, using methyl orange T.S. as the indicator. From the volume of the normal sulfuric acid consumed, deduct the volume of normal sulfuric acid corresponding to the content of calcium oxide in the magnesium oxide taken for the assay. The difference is the volume of normal sulfuric acid equivalent to the magnesium oxide present. Each cc of normal sulfuric acid is equivalent to 0.02016 gm of MgO or to 0.02804 gm of CaO.

C-232—MAGNESIUM PHOSPHATE, TRIBASIC

(*U.S.P.*)

Identification: Ammonium molybdate T.S. added to a solution of tribasic magnesium phosphate in diluted nitric acid produces a precipitate of yellow ammonium phosphomolybdate which is soluble in ammonia T.S.

Dibasic Salt and Magnesium Oxide: Ignite about 2.5 gm of tribasic magnesium phosphate to constant weight. Weigh accurately about 2 gms of the ignited salt, and dissolve it by warming with 50 cc of normal hydrochloric acid. Cool, add 1 or 2 drops of methyl orange T.S., and slowly titrate the excess of normal hydrochloric acid with normal sodium hydroxide to a yellow color, vigorously shaking the mixture during the titration. Not less than 14.8 cc and not more than 15.4 cc of normal hydrochloric acid is consumed for each gram of the ignited salt.

Assay: Proceed as directed under calcium phosphate tribasic, using 0.2 gm of the ignited salt, accurately weighed. Each cc of normal sodium hydroxide corresponds to 0.005717 gm of $Mg_3(PO_4)_2$.

C-233—MAGNESIUM SILICATE, HYDRATED OR MAGNESIUM TRISILICATE

(*U.S.P.*)

Identification: a) Mix about 0.5 gm of magnesium trisilicate with 10 cc of diluted hydrochloric acid, filter, and neutralize the filtrate to litmus paper with ammonia T.S.: the neutralized filtrate responds to the tests for magnesium. b) Prepare a bead by fusing a few crystals of sodium ammonium phosphate on a platinum loop in the flame of a Bunsen burner. Place the hot, transparent bead in contact with magnesium trisilicate, and again fuse. Silica floats about in the bead, producing, upon cooling, an opaque bead with a web-like structure.

Assay: For magnesium oxide—Weigh accurately about 1.5 gm of magnesium trisilicate, and transfer to a 250-cc Erlenmeyer flask. Add exactly 50 cc of normal sulfuric acid, and digest on a steam bath for 15 minutes. Cool to room temperature, and titrate the excess acid with normal sodium hydroxide, using methyl orange T.S. as the indicator. Each cc of normal sulfuric acid is equivalent to 0.02016 gm of MgO.

For silicon dioxide—Transfer about 0.7 gm of magnesium trisilicate, accurately weighed, to a 150-cc beaker. Add 10 cc of normal sulfuric acid, and heat on a steam bath for 1 hour and 30 minutes. Treat the residue with 25 cc of distilled water, and digest on a steam bath for 15 minutes. Decant the supernatant liquid through an ashless filter paper, and wash the residue, with subsequent decantation, three times with hot distilled water. Finally transfer the residue to the filter, and wash thoroughly with hot distilled water. Transfer the filter paper and its contents to a platinum crucible. Heat to dryness, incinerate, ignite strongly for 30 minutes, cool, and weigh. Moisten the residue with distilled water, and add 6 cc of hydrofluoric acid and 3 drops of sulfuric acid. Evaporate to dryness, ignite for 5 minutes, cool, and weigh: The loss in weight represents the silicon dioxide and is not less than 45 percent of the weight of the magnesium trisilicate taken for the assay.

Ratio of MgO to SiO_2.-Divide the percentage of SiO_2 obtained in the assay for silicon dioxide by the percentage of MgO obtained in the assay for magnesium oxide. The quotient obtained is not less than 2.10 and not more than 2.30.

C-234—MAGNESIUM STEARATE

Melting point of magnesium stearate is 140° C, ash 8.6 percent. It is insoluble in polar and non-polar liquids, although at elevated temperatures it can be dispersed in various media. Ash, dissolved in mineral acid, responds to test for magnesium.

(Chapter IV continues in subsequent issue.)